FOR THE SPECIALIZED COMMUNICATION RADIO A

AMATEUR TELEVISION MAGAZINE

DEC. 1982 VOLUME 12 NO. 12 PUBLISHED MONTHLY "OUR 16TH YEAR" $2.00

ys!

TM you all very nthly" issues cations cov- th

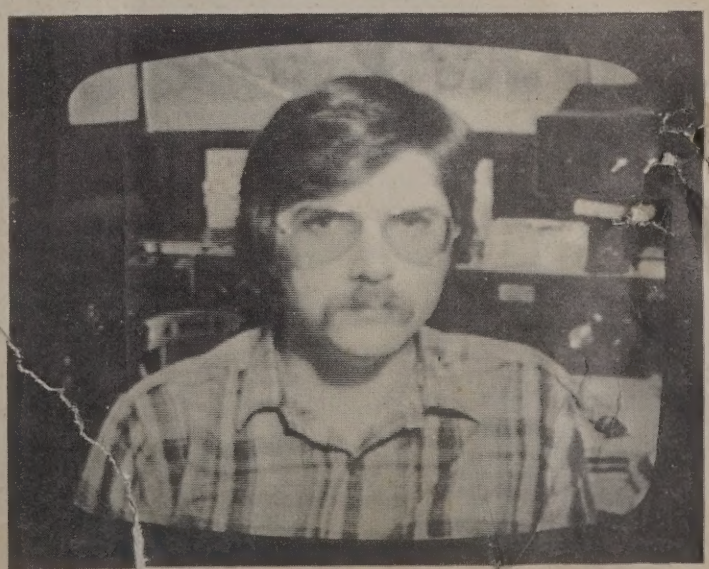
SEASONS GREETINGS

A5 MAGAZINE Editor Mike Stone WB0QCD MC's Fall Peoria Midwest Conference

Chicago to St. Louis ATV (265 mile FSTV-DX)

- United States ATV Society in 1983!
- Expanded "Letters to the Editor" Section
- World News Roundup!
- Color Problems and Cures with Liberty TV
- Using Oscilliscopes for FSTV Monitoring!
- February A5 "ATV QSO Party" Information!
- General Electric Develops Dual-TV Transmission!
- Worldwide TV Channel Directory-Microwave Filter
- Why Things Are The Way They Are (ATV)
- 1240-1300 Mhz. FSTV Block Downconverter Project - N6WQ
- 1240-1290 Mhz. Parabolic Antenna for ATV! -N6WQ
- California SCRRBBA Amateur Bandplans-W6ORG
- Color SSTV Standards - VE3EGO!
- SSTV Image Enhancement & Apple Computer -WA6NFA
- Amateur FAX in the 1980's (TRS80C)-WB5TXA!
- World's First Digital Video FAX Converter-DL2RZ!
- First USA to Japan FAX DX HF Contact?
- New "Dynamic Specialties" AFSK CW/RTTY TU- K6KLO
- HAL RTTY Reference Table
- A5 Classified Ads!

(Photos by WB0ZJP)



P5 436 Mhz. ATV Signal of Dave Williams WB0ZJP

SPECTRUM INTERNATIONAL INC.

P.O. Box 1084 S, Concord, Mass. 01742 USA

VISA

MML 432/50 50 WATT 432 MHz LINEAR AMPLIFIER & LOW NOISE RECEIVE PREAMP

$239.95

FEATURES

- ★ 50 WATTS TYPICAL OUTPUT (30 - 40 WATTS FSTV)
- ★ RUGGED 145 W DISSIPATION PA TRANSISTOR
- ★ ULTRA LOW–NOISE RECEIVE PREAMPLIFIER
- ★ EQUIPPED WITH RF VOX AND MANUAL OVERRIDE
- ★ L.E.D. STATUS LIGHTS FOR POWER AND TRANSMIT
- ★ SUPPLIED WITH POWER LEAD AND ALL CONNECTORS

SPECIFICATION

LINEAR AMPLIFIER

Power profile	:	50 watts typical output for 10 watts input
Power gain	:	6 dB minimum
Frequency bandwidth	:	420 - 450 MHz
Power requirements	:	12.5 volts at 8 amps for 50 watts output 13.8 V maximum
Quiescent current	:	1 Amp nominal at 12.5 volts (with zero drive)

RECEIVE PREAMP

Overall gain	:	10 dB typical
Overall noise figure	:	Better than 3.0 dB
Frequency bandwidth	:	420 - 450 MHz
Receive current	:	75 mA nominal at 12.5 volts

GENERAL

RF input connector	:	50 ohm BNC	**Weight**	:	2 kg. (4lb. 6oz.)
RF output connector	:	50 ohm BNC	**Overall size**	:	265 x 117 x 54 mm (10⁷/₁₆ x 4⁵/₈ x 2¹/₈")

MML-432/100 Watt PEP Model available (No preamp) $444.95

DESCRIPTION

This 432 MHz solid state linear power amplifier, MML432/50, is intended for use with any existing 432 MHz equipment having an output power of 10 watts. When used in conjunction with such a drive source, this linear amplifier will provide a power output of 50 watts, and the incorporation of a low-noise receive preamplifier, will provide an improved overall system noise figure.

The inclusion of the latest state of the art power transistor (rated at 145W dissipation) guarantees highly reliable and ultra-linear performance, which makes the unit ideal for all modes of operation, (SSB, FM, AM, CW and SSTV). The amplifier utilises recently developed matching techniques which allow safe operation even when improperly subjected simultaneously to 50% overdrive and a supply voltage of 15V. The PA transistor is thermally tracked against ambient temperature variation and operational temperature rise.

By means of an internal RF vox circuit the linear will automatically switch onto transmit when 432 MHz drive is applied to the input socket. However, this facility may be overriden by the application of an earth to pin 1 of the 5 pin DIN socket located on the rear panel. This may be achieved by connection to the transceiver PTT switching line.

Protection is included against reverse polarity.

All RF circuitry is constructed on high quality double sided glass-fibre PC board and the use of broadband stripline techniques gives the unit a bandwidth of 10 MHz, without the need to retune.

The unit is housed in a highly durable, extruded aluminium enclosure RF input and output sockets are located on the rear panel, together with the push to talk line phono socket.

The unit is supplied fitted with a 12V supply cable, plugs for both input and output connectors and a phono plug for the PTT line.

"A Great Mast-Mounted Amplifier/Preamp For ATV Operation" —WB9QCD A5 Magazine

HAPPY HOLIDAYS!

"Seasons Greetings" from the staff at A5! We thank you all very much for your support in 1982. The expansion to "monthly" issues was a positive move in bringing specialized communications coverage to you the Radio Amateur. We continue to improve with each issue. Steps are being taken to advance mailing times and better printed articles and diagrams. 1983 is sure to hold great things for ATV operators. With our January issue, we will announce the legal formation of a "United States Amateur Television Society", to "protect and promote" the ATV modes. This organization will be made up from "leaders" representing all modes of Ham Radio TV communications. You, the A5 subscriber, will share your voice in the decision making process via "the official journal". One of the first projects to be undertaken by the USATVS in 1983, will be the cooperation by the ATV community and Cablesat General, ARRL, FCC and AMSAT for a 1985 launching of a geosynchronous space satellite carrying an on-board wideband transponder for FSTV repeater communications for the first time ever from coast to coast! Think of it gang, CQ Hawaii de W1ATV East Coast calling on 5 Ghz... (and in color?). My, how things have progressed from Marconi's "wireless" or Samuel F. Morse's "dits and dahs". SSTV promises even further TV advancements in "higher-resolution" and new off-spring modes that will result in experimentations by those not profit motivated. Dayton 1983 will bring even more systems to the SSTV enthusiast at prices never before seen that are affordable to those who are interested in our end of the hobby. Hopefully, with the FCC's help, extended mode privledges and new bands will become available for even more experimentations of Ham Television. The important thing to remember, is to be a part of it all. Blow the dust off of that old model 70 converter or that T-44 transmitter and get back on-the-air again! There is a whole new ATV crowd out there with interest like never before. Other publications are beginning to take notice of specialized communications where it once was hidden in the back of issues.

DAYTON "TV SHUFFLE"

Ron Flynn KB8LU (SSTV Column Editor of WORLDRADIO NEWS) did some fancy footwork in the month of September at Dayton, Ohio and in a press-release received October 29th at A5, he announced himself as the "new" moderator/chairman for the ATV/SSTV forum and activities for the 1983 Dayton Hamvention. A5 in a telephone "interview" with Jerry Brittonhall WB6YFV, Dayton Hamfest Committee Programs Chairman revealed that Mr. Flynn called him and offerred his services in place of the traditional ATV Chairman Dr. Don Miller W9NTP of Waldron, Indiana. In a further statement of the Flynn "press release", it was learned that the 17 year traditional Friday night SSTV get-together (recently held the past few years at the Holiday Inn North) will also be coordinated by KB8LU himself in place of the joint venture by Robert Suding WØLMD of Virginia and Don Miller W9NTP. In a followup "interview" with Bob Suding WØLMD on the matter, Bob stated that "this is the year for the appliance operators" and he wished Mr. Flynn much luck in the takeover move. Comments to A5 from Don Miller were that he knew nothing of the entire situation and it came as a bit of a shock when he also received the press release. Certainly, it will be an "interesting" year at Dayton 1983.

FSTV MEETING AT LAQUINTA IN DAYTON IN 1983

We promised an informal get-together for FSTV'ers next year at Dayton. We have procurred a meeting room and hospitality suite at the "La Quinta Motor Inn North" in Dayton for Saturday evening April 30th from 8 pm. to 11 pm. Special rates will be given to ATV'ers of $25.50 per single, $29.50 for double and $34.50 for two beds (plus tax). We mention this in advance of our planned January 83 issue "official announcement" so that you may take advantage of still available rooms at the "La Quinta" for the weekend. Reservations may be made thru "June" at (513) 276-6151 in Dayton. Assemble all your groups FSTV photos and videotape programs (both VHS and BETA recorders will be available) and stop on over for a little ATV "hamming" and relaxation. If you've never been to Dayton, Go! 73's -QCD

"EXPANDED EDITION!"

"Letters To The Editor"

P.O. Box H, Lowden, Iowa 52255

(Send your comments and letters to above address)

"TEST TRIAL RUN FOR A5"

"Because I have tried to get by on a "fixed" income, I reject those items that increase much over the inflation rate such as A5 has done at 33%. I am no TV stranger only how you apply it's use to Amateur Ham Radio. I need the experience and knowhow of some TV source of information however, to get my SSTV organized and will take a year's A5 to give it a fair trial." Richard E. Masnruch KB9BW, Sheboygan, Wisc. Editor-Thanks Richard for your "trial" subscription!

"Mad English SSTV'er on 14.230 Mhz."

" Why is there SSTV Nets on Saturdays on 14.230 Mhz. when International SSTV Contests are in operation? I tried several times on October 9th while working the GARTG SSTV Contest to break into the US Net that ran for 3 hours on the established SSTV operating frequency. The chaps were too busy sending color to look for overseas DX. The same interference happens on your winter WAS and summer SSTV-DX A5 Magazine contests. When 73 Magazine sponsors a contest however, the net is not run. We have such a fight on our hands just trying to get a clear spot for SSTV operation and QRM from our own group is unforgiveable!" G. Sanders, Middlesex, England.

"First Amateur Radio Television Contact?"

"With so many people claiming to have been the "first" 2-way TV Ham Radio contacts, I submit the following historical information; During the 1939-40 New York World's Fair, W2USA Radio Club operated with managing director Arthur Lynch W2DKJ and yours truly (then W2BKU) a member of the technical committee. In 1940, L. C. Waller W2BRO (then with RCA) in an article that appeared in QST, described an amateur television system that used a 1847 iconoscope. Two sets of equipment were loaned to the club and during the summer on 1940, we were on-the-air with two-way TV communication! The second ATV station was installed on the 11th floor of the New York Daily News building which gave us line-of-sight between the news building on 42nd street and the "World's Fair Radio Station in Flushing, Long Island, New York. The operator of the station at the news building was Fred Cusick W2HID. Operation was on 5 meters and 2.5 meters with "video" and "audio" on separate bands. If I remember correctly, resolution was 120 lines. This happening can be documented in QST sometime in 1940 (anybody got the article? Send to A5!). Quality left alot to be desired, but it was LIVE TELEVISION! Hopefully, this will put to rest all previous claims of the "first two-way" Ham-TV?" -Sam Laine W4MDP

"Great Book for Information on FSTV"

"While persuing our local library for books on Amateur Radio (it's sad how little is really available), I came across this great book; VIDEO USER'S HANDBOOK by Peter Utz. The copyright is 1980 so the information is pretty current (Publisher Prentiss-Hall). Some of the contents include; what a good TV picture should look like, why bad pictures happen, video tape machines, TV cameras, lagging and sticking, tripods, camera techniques and special effects, chromakey explanations, sound and michrophones for TV use, editing a video tape without a fancy editor, wave form generators, time base correctors and many more. This book I recommend strongly both both the new and old timer ATV'er. I enjoy A5 Magazine very much.*It was your talk last year at Peoria that got me into FSTV." -Brian Davis W9HLQ, Tinley Park, Illinois *(Editor-You never know do you MCF?)

"LETTERS TO THE EDITOR" Continued. . .

"CANADIAN AMATEUR TELEVISION IS ALIVE!"

"Sorry for the delay in forwarding info on ATV activity in this area, hope it's not too late? I was one of the original ATV'ers in this area of Canada back to 1974 when there was a "spurt" of ATV interest-so much so that I was the first to apply and receive Canada's first ATV Repeater license "VE3TVR" (What a callsign eh?). After a time, interest dropped all but for occasional testing and the project was shelved for lack of funds. Interest is regaining once again and shows much promise. I recently formed the Golden Horseshoe ATV Association and have noticed both old and new ATV'ers showing some great interest. P-5 pictures are commonplace at distances on 50-70 miles with some TV color transmissions! Color ATV Stations include VE3CJP, VE3DM, VE3JNN, VE3QF and others. Both "on-carrier and sub-carrier" is being utilized. The primary audio link on two-mtrs. is 146.490 Mhz. We are all horizontally polarized. The "Para-beam" with its' 17 db of gain seems to perform the best after direct comparison with other antennas such as TV Colinears, Quaqi or Yagis and even slot antennas." -Julius Csatahy VE3FYY Ontario, Canada (Editor-Thanks for the information! Your submitted roster will be used on an upcoming Canadian ATV Report which I know we keep promising (it is hard getting information). 73's

"WEATHER/SATELLITE FAX PICTURES"

"I am planning to build my own receiver "station" for receiving weather-satellite FAX pictures and am looking for any articles, book recommendations and other helpful advice you might have-preferably with circuit diagrams, block schematics, etc. My planned method is to record the transmissions on an audio recorder and then play them back into some sort of device to a monitor TV display (not SSTV) on a regular TV set. The device will digitize the information into memory. Anybody fooling around with FAX and weather pictures out there?" -Frode Seim, Hjellestadvn 163, N-5065 Blomsterdalen, Norway (Editor I have three recommendations for you; 1. Contact Ralph Wilson WBØESF (address in A5) for his FAX collection of articles from various magazine charging only for reproduction costs. 2. The New Weather Satellite Handbook-by Dr. Ralph E. Taggart WB8DQT #BK7383 $8.95 USA via 73 Magazine Bookshop, Peterborough, NH. 03458 (Add $10.00 Foreign Air Mail), 3. A5 has continuous articles on FAX including one in this issue by Gerard Gore WB5TXA.

"MISSISSIPPI ATV REPORT SENT"

"We missed seeing our state in your great Fall ATV State Report in your October issue! Maybe because no one submitted one? Only two of us are active here in central Mississippi; Earl KC5SA in Brandon and myself George Tew N5AME in Jackson. A group in the Vicksburg area seems interested in getting on ATV also. There must be others? Write to us! I enclose a check for $12.45 for the A5 ATV Book. Thanks!" -George T. Tew N5AME

"ROBOT 70 PROBLEM?"

"I got my issue of A5 "September" today and noted with amazement the front cover photo of DJ1IJ and his Robot 70 SSTV Converter and his "high quality" black/white resolution picture! Gee, I never got pictures like that one... mine are all green and blurry and fades out quickly..." -Robert Wilson WBØRIM, Iowa

"BLENDING PHOTOGRAPHY AND ATV"

"I ran across this adapter the other day that lets one use their 35 mm SLR Camera lense on a video camera. Many of us have plain old "C" mount lenses on our FSTV cameras, but have closeup, macro and zoom lenses for our regular photography cameras. Here is a way to blend that end of the hobby with ours!" -Brian Davis W9HLQ, Tinley Park, Illinois (Editor-This issue's advertisement for The Camera Corner is a place where these types of lense adapters can be obtained. Write to Tom and state your SLR camera, lense and model of video TV Camera for prices.)

INTERNATIONAL
AMATEUR TELEVISION MAGAZINE

News Roundup

UOSAT BACK IN OPERATION

UOSAT (OSCAR 9) is back in full operation as Amateurs at the Stanford Research Institute in Palo Alto, California were finally successful in using their 60' dish antenna to turn off a 2 meter and 70 cm. transmitter desensing problem. Built by AMSAT-UK, the spacecraft's main purpose is experimental and the collection of data and telemetry information. The main radio beacon can be heard on 145.825 Mhz. A special onboard SSTV camera transmitter has been sending pictures back to earch TV stations on a non-regular basis. —WESTLINK REPORT #377

DIGITAL CODE APPROVAL BY FCC

The FCC's passage of Docket 81-699 means almost limitless use of digital codes above 50 Mhz. By acting favorably on the ARRL request, the Commission has given the green light to Radio Amateurs to use any digitalized code that represents alphanumeric characters and more specifically authorizes voice, facsimile (FAX) and RTTY as well as direct computer to computer communications including "packet" systems. For now, this is limited to US stations under the jurisdiction of FCC regulations and 20 khz. between 50-220 Mhz., 100 khz. between 220-1215 Mhz. with any bandwidth permissable under sections 97.63 and 97.73 for 1215 and above. Prohibition against digital communications from 50.0-50.1 and 144.0-144.1 Mhz. is in effect to protect those frequencies used for CW transmissions. —WESTLINK REPORT #377, W5YI #4-20

UHF HIGH-POWER WAIVERS GRANTED

Waivers to some New England Amateurs for "high power" operation in the 420-450 Mhz. band (recently limited -see A5 October WNR) near Otis AFB "PAVE PAWS" radar installation. Any requests for "waivers" must go thru the local FCC engineer-in-charge and will then be forwarded to the proper military facility for consideration. To date, 25 requests have been filed in the New England area alone. If this ruling has effected any UHF-ATV'ers and FSTV operation, please let us (A5 Magazine) know as soon as possible. Any reports of interference to 420-450 Mhz. band activities should be forwarded for official filing. —WESTLINK #377

UNITED STATES AMATEUR TELEVISION SOCIETY BY A5

In a move to "protect" and "promote" Amateur Television frequencies and mode priviedges, a legal formation of a UNITED STATES ATV SOCIETY is being organized and will be formally announced in the january issue of A5 ATV MAGAZINE. Over 30 "leading" ATV'ers have been contacted for verification of USATVS "Advisory" positions in the organization. Subscribers to A5 ATV MAGAZINE "automatically" are members in the ATV Society unless otherwise directed. The formation is a technical "representation" that carries on the work of petitioning, lobbying and commenting as well as promotion of the ATV modes (FSTV, MSTV, SSTV, FAX) by A5 ATV MAGAZINE. —A5

SPACE FSTV SATELLITE IN 1986?

Communication efforts between CABLESAT GENERAL, ARRL and A5 MAGAZINE have been underway since August concerning the possibility of an ATV (FSTV) portion on the announced CABLESAT geosynchronous satellite scheduled to be launched late 1985 or early 1986 pending FCC approval. The C-band transponder is available for wide-band use by Amateurs 3.4 and 5.6 Ghz. range requiring TVRO type transmitting and receiving dishes for CONUS ATV operation. —A5

CABLE-TV COMPANY GETS "SOCKED" BY FCC

The FCC announced on October 6th, that it had issued a Notice of Apparent Liability in the amount of $6,000 to Sonic Cable-TV of San Luis Obispo, California for failure to correct signal leakage which interfered with Amateur 2-meter operation. "Full scale" S-meter readings have been experienced by WB6GVO Richard M. Helzer from the cable firm on 145.250 and 147.060 Mhz. Suspected cable-TV interference complaints have been issued in other parts of the country. If ATV'ers can locate the source of local interference, especially in the 420-450 Mhz. bands (cable-TV has channels in our bands but on a non-interferring basis), the RFI should be reported to the local FCC office, the suspected cable-TV firm and A5 Magazine. —A5

MIDWEST "SYNC BUZZ" A5 NEWSLETTER DIES

The midwestern A5 Magazine "SYNC BUZZ" ATV Newsletter is no longer in production. Originally conceived as an "in-between" bi-monthly issue publication (when A5 MAGAZINE was published only 6 times per year) the service was determined to be too expensive and no longer necessary since monthly publication began in March, 1982. Those contributions stamps or monies in support of the newsletter have been appropriately extended by one issue on their A5 Magazine subscriptions. —A5

FCC DROPS TV RECEIVER GRADING PROGRAM

The FCC declined to adopt a television receiver "grading/labelling" program designed to alert the general public as to model technical characteristics. Docket 78-307 was an FCC inquiry release of nearly 4 years ago to determine if customers would get better TV reception if the government required mandatory grading and/or labelling of not only the TV sets themselves but for antennas and transmission lines as well. It was felt by many that such a program would indeed be worthwhile but broadcasters and industry manufacturers opposed the additional government controls. Official comments were also filed by the ARRL. The ARRL's position was for the passage of the control measure stating that it seemed well founded and would provide more consumers with information about different brands of TV sets and antenna systems. Such a program would serve as an incentive to manufacturers for improved performance and hopefully the installation of adequate RF filtering. In the end, the NAB (National Association of Broadcasters) said they were for the action but the EIA (Electronics Industries Association) stated such an action would be extremely undesirable and counterproductive. This action was initiated by a different administration and the current Reagan administration is taking the direction of "deregulation" and less government control of business. Text of the decision is in the Federal Register August 12th. —W5YI #4-17

NEW VIDEOTAPE FILMS AVAILABLE

"MOVING UP TO AMATEUR RADIO", a 10 minute promotional film on video tape (VHS, Beta II, U-Matic and 1" type C Broadcast) by Dave Bell W6AQ and Associates will be distributed by WESTLINK Radio Network. W6AQ has done other Amateur videotape productions including "The World of Amateur Radio" and Tom O'hara's ATV 20 minute videotape. Prices have not yet been announced and will become part of the "A5 Videotape Library". Another WESTLINK presentation called "The Dayton Experience" is also in final production based on 1981 and other earlier convention outings. Release of the film is expected by mid December. —WESTLINK #377

ABC GETS FCC OKAY TO HVN

"WEE HOURS VCR BROADCAST NETWORK" (New Pay TV Service Coming!) The FCC has given the green light to ABC on their proposed "Home View Network" (HVN) which the commission called "creative and innovative". ABC is setting up "scrambled" TV stations that will transmit "premium" programming (first run movies) each day between the predawn hours of 1 a.m. to 6 a.m. geared for owners of "automatic" programmable video cassette recorders. A "black box" scrambler device will be used at home in which "HVN" will charge the public $19.95 a month plus a $100 installation fee. ABC also plans on leasing VCR's for $30.00 a month if the viewers do not already have one. (Scrambler decoders get ready for a new challenge.—A5) —W5YI Vol. 4 #17

CBS PETITIONS FCC FOR MCS

CBS has petitioned the FCC for a high quality multichannel MDS service to known as Multiple Channel System (MCS) in the New York, Philadelphia, Chicago, St. Louis and Los Angeles areas. MDS operates around 2.3 Ghz. while the proposed MCS will additionally operate in the 2.5-2.69 Ghz. range with "extra" channels. Instructional Fixed Television Service (IFTS) operates in the 2.3-2.45 Ghz. area just above Amateur bands from 2.3-2.45 Ghz. MCS is looked upon as being a low cost alternative between Direct to the Home Broadcast Service (DBS) and Cable TV. The MCS will no doubt cause problems for Amateurs with RFI. Let's see now, there's VHF, UFH, DBS, CATV, TVRO, LPTV, STV, MDS, VCR and now MCS (and don't forget ATV!) Is that enough viewing for you "video buffs"? .Channel 4

"ASK TOM" TOM O'HARA W6ORG, 2522 PAXSON, ARCADIA, CALIFORNIA, 91006

Q1 "European ATV'ers are going to "FM video" on 1200 and 2300 Mhz. What are the advantages and disadvantages of FM over the present AM video methods?

A Advantages; Above carrier to noise ratios of about 10db, the picture signal to noise (snow) improves at a much faster rate. The limiter in a FM IF is most responsible. With AM, the picture signal to noise rate is the same as the carrier signal to noise rate. Example; An AM 100-watt ATV signal from a 10-watt rig using a linear amplifier will show about a 10 db improvement or like going from P2 to P4. With FM under the same circumstances, it may go from P2 to P5. It is much easier to increase power because the modulator is the same back at the oscillator. Good efficiency class C amps can be added anytime without worrying about linearity or going to higher level power modulators. At microwave frequencies, there are many devices such as varactor multipliers, Gunnplexers, reflex klystrons, DRO's, etc. that FM's easily where AM doesn't work well at all. Disadvantages; Mostly operational, it takes a whole new receiver, the slope detection method we used to use in the early days on 2 meters with our AM receivers gives very poor results meaning our downconverters into standard TV sets won't do it and inhibits growth in ATV. Advanced Receiver Research has a nice 70 Mhz. FM video IF strip system (RXV70VD) for just under $100. It was made for 10 Ghz. Gunnplexer systems and should work well for any other microwave receiving systems including TVRO's. Bandwidth is the biggest disadvantage and is why it is used only on microwave frequencies. The rule of thumb for FM is the occupied bandwidth 2 times deviation plus 2 times the highest modulating frequency. If a 4.5 Mhz. audio subcarrier is figured with 10 Mhz. deviation (same as on satellites), then 29 Mhz. is necessary (2X4.5) + (2X10). This doesn't leave much room in the 400 and 1200 Mhz. Amateur Bands to allow simplex, repeaters or other modes. On the 2300 Mhz. band, 2400 is simplex AM, 2380 simplex FM and 2325/2425 repeater AM or FM. If it wasn't for FM premphasis and deemphasis, the noise floor would be about 8 db higher than normal AM just due to the bandwidth. Another disadvantage, with the 10 Mhz. deviation-it is difficult to be xtal controlled without using a stable varicap modulated free running oscillator and mixer system, or a phase locked loop. A popular British system designed by G3YQC uses a modulated trough line transistor oscillator at 420 Mhz. followed by power amplifiers and varactor triplers. With this method, one must have a frequency counter to make sure the oscillator doesn't drift off the band.

Q2 "What type of range can we expect on 2300 Mhz. for FSTV? Any DX records?"

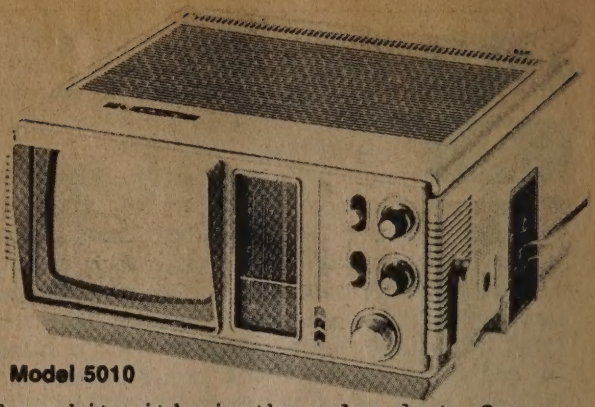
A Experimentation with 2300 Mhz. ATV is very limited in the USA. Some ATV'ers of the Southern California ATV Club have been experimenting with 2300 with surprisingly good results at low power. Our TVG-23 circuit is selling well to MDS people and makes an excellent test generator for the ATV shack. The best ATV-DX on 2300 Mhz. with this mighty milliwatt is 5 miles (recognizeable call letters) from Jim WB6ROP and Bob WA6JCG in the San Diego area. With talk of a possible ATV Satellite, 2300 Mhz. popularity just might be on the increase in the next few years.

Q3 "We are a new group of ATV'ers and must make the decision wether to go to vertical or horizontal antenna polarization. Which way should we go and why does it vary across the country?"

A Technically, there is no significant advantage of one polarity over the other. An extensive 2-year U.S. Army study in all types of terrain, modes, and conditions concluded that above 300 Mhz. no significant communications advantage was gained between the two types of polarization modes. Below 300 Mhz. gave significant advantage to horizontal polarization. The polarity in a given area for ATV is usually determined by first user preference or surrounding area mode use. If there is no determined polarization in a given area (look for several hundred miles) then I suggest vertical polarization for later on repeater use. Mobile use is easier if vertical polarization is maintained. Circular polarization may seem to be an answer for the multi-mode users (432 SSB/450 FM etc.) but a 3 db loss will result against a fixed polarity ATV station not circular polarized. The important thing is to agree on polarity. As much as 20 db loss results in cross-polarization communications. 73's de W6ORG

COLOR TROUBLE WITH YOUR LIBERTY TV?

Readjusting the Color-Drives Might Be The Answer!

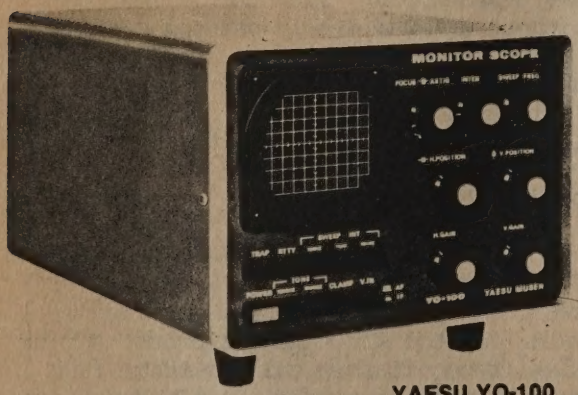


Model 5010

Our July 1982 issue, carried a "review" of the popular Liberty #5010 Color TV/Video Monitor offerred to ATV'ers by PC Electronics (see ad). It is rated as one of the "hottest" sensitive commercial TV receivers available on the market for great UHF-ATV viewing. It also features some very handy video inputs and outputs for a videocassette recorder interface or computers as well direct inputs and outputs for raw video from cameras, SSTV converters, oscilliscopes, etc. If there seems to be anything that it lacks a bit, it's in the color dept. Our first model #5010 had "good" color (although it didn't seem to be as bright and strong as say an RCA Colortrack or Sony models). It appearred that VCR tapes and direct reception of commercial TV stations was displaying sufficient color, but on ATV transmissions-it lacked a little for the strength of the picture. Our 2nd model #5010 TV set (the original was stolen under duress by WB9MCF) had even worse color display. Only 5 screws hold the top of the TV's cabinet in place and is easily removed in a matter of seconds. On the left hand side (facing the TV) toward the back are the color-gun drive controls. These pots are appropriately marked Red, Green and Blue with other controls for sharpness and contrast adjustments. These internal potentiometers are master settings for the outboard fine-tuning adjustments located on the left side of the unit. With a known source of good color display, readjustment of all pots were made providing much better color on the screen. The internal pots should be adjusted so that you have a little "swing" available from the outboard controls. Now I am seeing good color.

USING OSCILLOSCOPES FOR ATV

New A5 O-Scope Articles Coming In 1983!



YAESU YO-100

If there is anything that seems to be nearly as exciting as watching the ATV signal itself on-the-air, it's watching the various video patterns displayed on an oscilloscope For the non-broadcast video "buff", most any scopes will do for monitoring ATV signals. Some of the more elaborate test scopes such as Hewett Packard models or Tektronix ones can "look" into the video waveform and see the sync and color burst signals, front and back porch, etc. Tektronix model 525 and 527 Television Waveform Monitors are sought after bargains at "hamfests" or can be found at TV stations laying in a corner-replaced by more modern transistorized units. Surprisingly, modulation monitor scopes such as the Yaesu YO-100 (pictured above) primarily used on HF bands at the Amateur station also show up at "great" prices. Feeding a raw video TV signal (or camera) from a PC DM-1 board, off of a looped monitor or from the video out jack of a VCR unit gives sufficient signal strength to display true video pictures on the P7 monitor. Our testing of the YO-100 unit with video composite fed into the "AF" input connector brought a very clear and precise display of the video waveform. The 100 hz. position showed an "overall" view of the video waveform, 1 khz. brought in a bit more detail with 10 khz. setting being the most favorable. An 8-bar color scale will show the stairstep pattern with fade outs displaying the basic sine wave pattern. A5 will be running a series of articles on using oscilloscopes for ATV in 1983. Some great reference reading material recommended; Television Operational Measurements & Video/RF for NTSC Systems by Tektronix Corp. 1980, PO Box 1700, Beaverton, OR. 97075, Television Analyzing Simplified (2nd edition) by Milton S. Kiver, B&K Manufacturing Co. Chicago, Illinois, or Howard W. Sams & Co. publication #20416 "101 Ways to Use Your oscilloscope by Robert G. Middleton. So watch ATV a different way where "green" is mean!

A5 STRAY RF

FAST SCAN ATV

G.E. DEVELOPS TWIN—TV SIGNAL

General Electric has developed a revolutionary new system of picture information that can be stored in dual memories in one TV 6-Mhz. channel. This new breakthru squeezes two lines of video into one and when transmitted, special decoders will separate the TV signals on the receive end. This will allow more programing material for cable-TV, MDS-TV and others in the same television spectrum as broadcasters.

"A5 GOOFS" ON CONTEST RESULTS

We sincerely apologize to two ATV entries of the 1982 North American A5 FSTV-DX Contest as we somehow omitted their scores. Jim Mc Kee Jr. WB6ROP of San Diego, California had 3,403 points-good enough for "4th" Place. Jim used a 70 watt amplifier and a 4 element beam for his successful ATV contacts. Video was on 434 Mhz. simplex with audio on 438.5. The only "multi-op" entry not reported in our November issue was "K2MME" manned by Howie Ferber and Barry Cohen (N2BJ) of New York. They racked up 2,030 points and operated near Blauvelt State Park, Hiway 9W Clausland Mountain Drive at the 790' ASL Nyack Repeater site. 40 watts on a PC TC-1 transmitter, Panasonic PK750 color camera and a K2RIW beam was used in the contest. Certificates have been mailed to all A5 FSTV Contest entrants.

A5 MAGAZINE 1983 CONTEST DATES

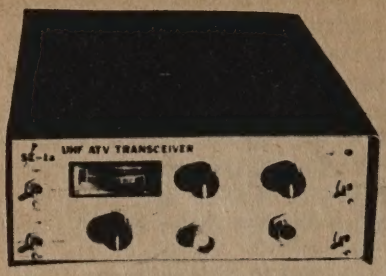
The following dates have been officially announced as 1983 "A5" Contest periods; January 14-16 A5 Worked All States SSTV Contest, February 18-20 A5 UHF-ATV QSO Party, July 15-17 A5 Internationale SSTV-DX Contest and August 19-21 A5 North American FSTV-DX Contest. A5 Magazine will provide all contest details and A5' press releases will be mailed to other publications. Don't sit there wishing you would have prepared for our contests, do it!

SUBSCRIBER VIDEOTAPE "LIBRARY" SERVICE COMING IN JANUARY

An extensive A5 Magazine "Videotape Library" is being assembled for subscribers only. It at first planned here that a "lending" process would be used with nominal charges, but complications were sure to set in with such a system due largely to anticipated delays of on-hand material, mailing, mistaken erasures, etc. Our January issue will list available VHS/BETA cassette programs which may for $5.00 and a mailed blank cassette, be duplicated here by us on our machines and returned to you (a mailing fee will also be included) or a low-price nominal charge on a cassette purchased by us plus handling fees. Other non-library videocassette programs relating to Amateur Radio will regularly be listed in our issues via direct purchases. If you have any programs that are video ATV or Amateur Radio in general related and you have the facilities for duplication (or you can send it to us for library inclusion) let us know the name and content of your program, time elapse, cassette format, etc. Now's the chance to put together the best "edited" program of ATV in your area! Interviews, commercial news spots, anything goes? Send us a "programmed" cassette and pick one out for yourself at no charge except mailing.

FEBRUARY A5 UHF—ATV QSO PARTY PLANS UNDERWAY!

(February 18th, 19th and 20th) Our January and February issues will carry full details including a contest entry log sheet form that can be copied and mailed back to us for scoring. Unlike our fall North American FSTV contest, this is not a DX contest but a "having fun" good ole video-ragchew contest. The primary purpose of this contest as in any A5 contest, is to create ATV activity. Scoring will be based upon the number of contacts regardless of quality and the length of maximum time per contact will be limited to 30 minutes. For this contest only, ATV "repeater" use is approved and even recommended so all can "see" and enjoy the video ragchew sessions for the weekends. Optional Club or control sponsored repeaters may designate official time periods that contest entries may use the system for the contest. Extra "bonus" points will be awarded for those who show "the shack", a project in-the-works, family members or friends and of course "a mug-shot". This has the potential of being a real "fun" video contest and if you have any suggestions fire them in to us by December 20th! Pass the "word" and "CUA5".



SE-1a UHF ATV TRANSCEIVER:

FREE ATV BOOK "Everything You Always Wanted to know About ATV* but were afraid to ask" ($9.95 value) with purchase of SE1a ATV transceiver!

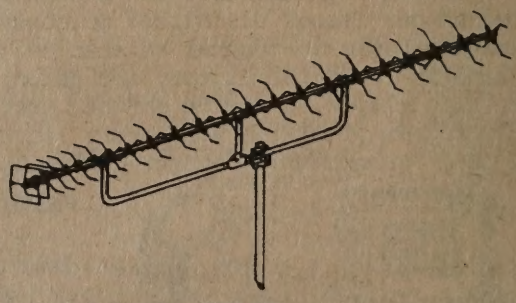
STANDARD FEATURES

- SA-1 SYNC AMP FOR SOLID STATE LINEAR AMPLIFIER USE.
- 2 RF STAGE DC-1 CONVERTOR WITH LOW NOISE NE64535 FIRST STAGE.
- BOTH FM AND 4.5MHZ SUB-CARRIER AUDIO.
- RECEIVE TUNES FROM 418MHZ THRU 455MHZ – OUTPUTS TO TV CH. 2, 3 or 4.
- STABLE CRYSTAL CONTROLLED TRANSMIT – 439.25 MHZ STANDARD – OTHERS AVAILABLE.
- DURABLE STRIPLINE LINEAR AMP FINAL WITH BANDWIDTH FOR COLOR AND 4.5MHZ SOUND.
- AVERAGE POWER OUTPUT IS 6 - 9 WATTS DEPENDING ON VIDEO CONTENT.
- SOLID STATE TRANSMIT / RECEIVE SWITCHING. **(2 Freq. transmit switching Optional)**
- BUILT-IN VIDEO / AUDIO MONITORING OF TRANSMITTED SIGNAL.
- ILLUMINATED PANEL METER FOR TRANSMIT AMP CURRENT AND RELATIVE RECEIVE FREQUENCY.
- RECEIVE RF GAIN CONTROL.
- CUSTOM MADE ALUMINUM ENCLOSURE WITH EPOXY FINISH.
- 13.6VDC OPERATION FOR MOBILE / PORTABLE OPERATION.
- 10.8" x 6.2" x 2.5"

$399.95 + $4.50 UPS

Add a camera, antenna, mic, 13.6vdc and a TV set for a complete fast scan ATV station.

Now Available From SE



MBM48/70 J BEAM 15.7 dBd	$ 75.75
MBM88/70 J BEAM 18.5 dBd	$105.50
MML 432/50 50WATT LINEAR	$269.95
PSF 432 BANDPASS FILTER – STOPS INTERMOD ACROSS WHOLE BAND	$59.95
PMH2-70 STACKING HARNESS FOR 2 J BEAM ANTENNAS	$16.95

WRITE FOR OTHER ITEMS AVAILABLE

Allow for shipping on above items.

Florida residents Add 4% Tax.

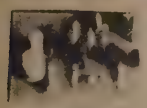
master charge VISA

Silvernail Electronics, Inc.
14061 - 111 Terrace North
Largo, Florida 33540
813/595-3317
(5–9:30 PM our time)

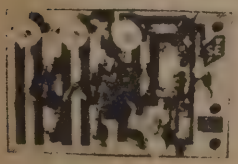
ATV KITS AND MODULES

VM-2 **VIDEO MODULATOR** – Wideband collector video modulator for solid state exciters such as those from GLB and Hamtronics. Input for 4.5MHZ audio sub-carrier. 2½" x 1½"; **$13.95** kit, **$18.95** assembled.

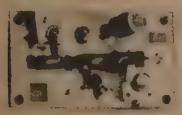
A-2 **4.5MHZ AUDIO SUB-CARRIER** – Accepts audio from VCR or GLB audio processor to provide ATV audio on TV set. Has on-board voltage regulator and shielded inductor. 2 3/4" x 1"; **$18.95** kit, **$24.95** assembled.



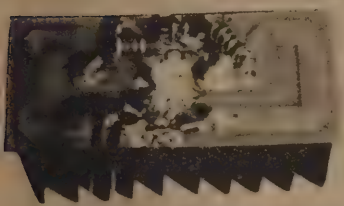
SA-1 **VIDEO SYNC AMP** – Provides separate video sync gain control for VM-2 above or SE-1a transceiver. Useful when driving solid state amps. 1 3/4" x 1 1/4"; **$14.95** assembled, **$11.95** kit.



DC–1 **UHF CONVERTOR** – Varactor tuned with 2 RF stages. MRF901 input standard. Double sided stripline design. Outputs to TV ch. 2, 3 or 4. Can be tower mounted. 11 – 14vdc. 2" x 3". $34.95 kit, **$49.95**, assembled, **$79.95** complete in box. Add **$15.00** for NE64535 1st stage.



P-1 **WIDEBAND LOW NOISE UHF PREAMP** – Uses MRF901 transistor to provide 16db gain and 1.7db noise figure. Covers 420–450MHZ band. Other frequencies received with change in input inductor. 2 1/4" x 1 3/8"; **$17.95** kit, **$26.95** assembled. Add $15.00 for NE64535 Option.



LA-1 **UHF AMPLIFIER** – Uses 15 watt MRF641 transistor with 7.8db gain @ 470MHZ. Stripline inductors with on-board pin diode antenna switching for a receiver. Designed for wideband color video with exciters such as the GLB T450L that provides up to 3 watts drive. Drilled and tapped heatsink included (4 1/2" x 1 3/4"). 1 to 3 watts drive typically gives 6 to 18 watts output. 12 – 14vdc operation @ 4 amps max. Double-sided board is 4 ½" x 2". **$69.95** assembled with test data.

LA–45 UHF AMPLIFIER – Uses MRF646. Input power of 6-15 watts typ. gives 20-50 watts output. Biased for linear operation. Kit includes all parts, instructions and 4.2" x 3" double-sided stripline board. Needs 12-14 vdc @ 9 amps max. **$59.95** kit.

GLB T450L TRANSMITTER – 4 1/2" x 2" RF board typically supplies 2–3 watts FM output, 1 – 1½ watts average video RF output. Changes for wideband video modulation provided. Comes with crystal for 439.25MHZ, with other frequencies available upon request. Also includes separate 1" x 4" audio processor board which supplies audio for FM modulation or for the A–2 4.5MHZ audio kit above. 12–14vdc @ 2 amps max. **$54.95** kit, **$74.95** assembled and tuned.

COMMON TO ALL KITS AND MODULES – 12 to 14 vdc operation. Drilled and plated glass circuit boards. Quality components with instructions including schematic and board layout.

"We support Amateur Television And A5 ATV Magazine!"

Shipping and Handling:
Add 2% – Minimum $1.50

Add Additional $2.00 for Blue Label
Florida residents add 4% tax

VISA

WE HONOR master charge THE INTERBANK CARD

SE

Silvernail Electronics, Inc.
14061 - 111 Terrace North
Largo, Florida 33540

813/595-3317

(5–9:30 PM our time)

TV CHANNELS - WORLDWIDE

COURTESY OF

MICROWAVE FILTER COMPANY, INC. 6743 Kinne St., E. Syracuse, NY, USA 13057

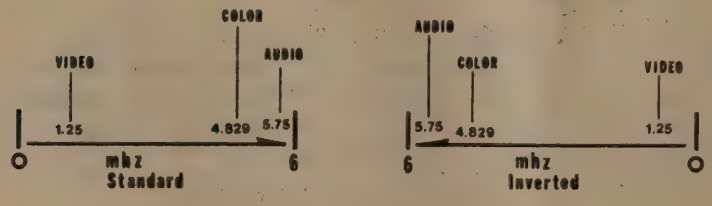
US & CANADA

CHAN SUB-BAND	BW(MHz)	PIX	COLOR	SOUND
T-7	5.75-11.75	7.00	10.58	11.50
T-8	11.75-17.75	13.00	16.58	17.50
T-9	17.75-23.75	19.00	22.58	23.50
T-10	23.75-29.75	25.00	28.58	29.50
T-11	29.75-35.75	31.00	34.58	35.50
T-12	35.75-41.75	37.00	40.58	41.50
T-13	41.75-47.75	43.00	46.58	47.50
VHF-LOW BAND				
TVIF	40-46	41.25	44.83	45.75
2	54-60	55.25	58.83	59.75
3	60-66	61.25	64.83	65.75
4	66-72	67.25	70.83	71.75
5	76-82	77.25	80.83	81.75
6	82-88	83.25	86.83	87.75
FM (PSEUDO)				
FM-1	88-94	89.25	92.83	93.75
FM-2	94-100	95.25	98.83	99.75
FM-3	100-106	101.25	104.83	105.75
VHF-MID BAND				
A-2	108-114	109.25	112.83	113.75
A-1	114-120	115.25	118.83	119.75
A	120-126	121.25	124.83	125.75
B	126-132	127.25	130.83	131.75
C	132-138	133.25	136.83	137.75
D	138-144	139.25	142.83	143.75
E	144-150	145.25	148.83	149.75
F	150-156	151.25	154.83	155.75
G	156-162	157.25	160.83	161.75
H	162-168	163.25	166.83	167.75
I	168-174	169.25	172.83	173.75
VHF-HIGH BAND				
7	174-180	175.25	178.83	179.75
8	180-186	181.25	184.83	185.75
9	186-192	187.25	190.83	191.75
10	192-198	193.25	196.83	197.75
11	198-204	199.25	202.83	203.75
12	204-210	205.25	208.83	209.75
13	210-216	211.25	214.83	215.75
VHF-SUPER BAND				
J	216-222	217.25	220.83	221.75
K	222-228	223.25	226.83	227.75
L	228-234	229.25	232.83	233.75
M	234-240	235.25	238.83	239.75
N	240-246	241.25	244.83	245.75
O	246-252	247.25	250.83	251.75
P	252-258	253.25	256.83	257.75
Q	258-264	259.25	262.83	263.75
R	264-270	265.25	268.83	269.75
S	270-276	271.25	274.83	275.75
T	276-282	277.25	280.83	281.75
U	282-288	283.25	286.83	287.75
V	288-294	289.25	292.83	293.75
W	294-300	295.25	298.83	299.75

CHAN	BW(MHz)	PIX	COLOR	SOUND
UHF				
14	470-476	471.25	474.83	475.75
15	476-482	477.25	480.83	481.75
16	482-488	483.25	486.83	487.75
17	488-494	489.25	492.83	493.75
18	494-500	495.25	498.83	499.75
19	500-506	501.25	504.83	505.75
20	506-512	507.25	510.83	511.75
21	512-518	513.25	516.83	517.75
22	518-524	519.25	522.83	523.75
23	524-530	525.25	528.83	529.75
24	530-536	531.25	534.83	535.75
25	536-542	537.25	540.83	541.75
26	542-548	543.25	546.83	547.75
27	548-554	549.25	552.83	553.75
28	554-560	555.25	558.83	559.75
29	560-566	561.25	564.83	565.75
30	566-572	567.25	570.83	571.75
31	572-578	573.25	576.83	577.75
32	578-584	579.25	582.83	583.75
33	584-590	585.25	588.83	589.75
34	590-596	591.25	594.83	595.75
35	596-602	597.25	600.83	601.75
36	602-608	603.25	606.83	607.75
37	608-614	609.25	612.83	613.75
38	614-620	615.25	618.83	619.75
39	620-626	621.25	624.83	625.75
40	626-632	627.25	630.83	631.75
41	632-638	633.25	636.83	637.75
42	638-644	639.25	642.83	643.75
43	644-650	645.25	648.83	649.75
44	650-656	651.25	654.83	655.75
45	656-662	657.25	660.83	661.75
46	662-668	663.25	666.83	667.75
47	668-674	669.25	672.83	673.75
48	674-680	675.25	678.83	679.75
49	680-686	681.25	684.83	685.75
50	686-692	687.25	690.83	691.75
51	692-698	693.25	696.83	697.75
52	698-704	699.25	702.83	703.75
53	704-710	705.25	708.83	709.75
54	710-716	711.25	714.83	715.75
55	716-722	717.25	720.83	721.75
56	722-728	723.25	726.83	727.75
57	728-734	729.25	732.83	733.75
58	734-740	735.25	738.83	739.75
59	740-746	741.25	744.83	745.75
60	746-752	747.25	750.83	751.75
61	752-758	753.25	756.83	757.75
62	758-764	759.25	762.83	763.75
63	764-770	765.25	768.83	769.75
64	770-776	771.25	774.83	775.75
65	776-782	777.25	780.83	781.75
66	782-788	783.25	786.83	787.75
67	788-794	789.25	792.83	793.75
68	794-800	795.25	798.83	799.75
69	800-806	801.25	804.83	805.75
70	806-812	807.25	810.83	811.75
71	812-818	813.25	816.83	817.75
72	818-824	819.25	822.83	823.75
73	824-830	825.25	828.83	829.75
74	830-836	831.25	834.83	835.75
75	836-842	837.25	840.83	841.75
76	842-848	843.25	846.83	847.75
77	848-854	849.25	852.83	853.75
78	854-860	855.25	858.83	859.75
79	860-866	861.25	864.83	865.75
80	866-872	867.25	870.83	871.75
81	872-878	873.25	876.83	877.75
82	878-884	879.25	882.83	883.75
83	884-890	885.25	888.83	889.75

CHNL.	PIX	SOUND
AUSTRALIAN		
A-0	51.75	46.25
A-1	62.75	57.25
A-2	69.75	64.25
A-3	91.75	86.25
A-4	100.75	95.25
A-5	107.75	102.25
A-5A	143.75	138.25
A-6	180.75	175.25
A-7	187.75	182.25
A-8	194.75	189.25
A-9	201.75	196.25
A-10	214.75	209.25
A-11	222.00	215.00
EASTERN EUROPEAN		
OIRT-1	49.75	56.25
OIRT-2	59.25	65.75
OIRT-3	77.25	83.75
OIRT-4	85.25	91.75
OIRT-5	93.25	99.75
OIRT-6	175.25	181.75
OIRT-7	183.25	189.75
OIRT-8	191.25	197.75
OIRT-9	199.25	205.75
OIRT-10	207.25	213.75
OIRT-11	215.25	221.75
OIRT-12	223.25	229.75
FRENCH		
F-2	52.40	41.25
F-4	65.55	54.40
F-5	164.00	175.15
F-6	173.40	162.25
F-7	177.15	188.30
F-8A	185.25	174.10
F-8	186.55	175.40
F-9	190.30	201.45
F-10	199.70	188.55
F-11	203.45	214.60
F-12	212.85	201.70
FRENCH OVERSEAS		
F-4	175.25	161.75
F-5	183.25	180.75
F-6	191.25	197.75
F-7	199.25	205.75
F-8	207.25	213.75
F-9	215.25	221.75
ITALIAN		
A	53.75	59.25
B	62.25	67.75
C	82.25	87.75
D	175.25	180.75
E	183.75	189.25
F	192.25	197.75
G	201.25	206.75
H	210.25	215.75
H-1	217.25	222.75

US - CANADIAN INTRA-CHANNEL CARRIER PLACEMENT



For CATV • MATV • CCTV Operators and 50 ohm Communicators

SPECIAL PURPOSE NETWORKS
BANDPASS FILTERS (BPF)
LO-PASS & HI-PASS FILTERS
PAY-TV TRAPS & FILTERS
TRAPS, GENERAL PURPOSE

Catalog C/80
Price $1.00

Channel 10

MICROWAVE FILTER COMPANY, INC. 6743 Kinne St., E. Syracuse, NY, USA 13057

SOUTH AFRICAN CHANNELS

CHNL	BW(MHz)	PIX	SND
4	174-182	175.25	181.25
5	182-190	183.25	189.25
6	190-198	191.25	197.25
7	198-206	199.25	205.25
8	206-214	207.25	213.25
9	214-222	215.25	221.25
10	222-230	223.25	229.25
11	230-238	231.25	237.25
13		247.43	253.43
21	470-478	471.25	477.25
22	478-486	479.25	485.25
23	486-494	487.25	493.25
24	494-502	495.25	501.25
25	502-510	503.25	509.25
26	510-518	511.25	517.25
27	518-526	519.25	525.25
28	526-534	527.25	533.25
29	534-542	535.25	541.25
30	542-550	543.25	549.25
31	550-558	551.25	557.25
32	558-566	559.25	565.25
33	566-574	567.25	573.25
34	574-582	575.25	581.25
35	582-590	583.25	589.25
36	590-598	591.25	597.25
37	598-606	599.25	605.25
39	614-622	615.25	621.25
40	622-630	623.25	629.25
41	630-638	631.25	637.25
42	638-646	639.25	645.25
43	646-654	647.25	653.25
44	654-662	655.25	661.25
45	662-670	663.25	669.25
46	670-678	671.25	677.25
47	678-686	679.25	685.25
48	686-694	687.25	693.25
49	694-702	695.25	701.25
50	702-710	703.25	709.25
51	710-718	711.25	717.25
52	718-726	719.25	725.25
53	726-734	727.25	733.25
54	734-742	735.25	741.25
55	742-750	743.25	749.25
56	750-758	751.25	757.25
57	758-766	759.25	765.25
58	766-774	767.25	773.25
59	774-782	775.25	781.25
60	782-790	783.25	789.25
61	790-798	791.25	797.25
62	798-806	799.25	805.25
63	806-814	807.25	813.25
64	814-822	815.25	821.25
65	882-830	823.25	829.25
66	830-838	831.25	837.25
67	838-846	839.25	845.25
68	846-854	847.25	853.25

JAPANESE

CHNL	PIX	SND
J-1	91.25	95.75
J-2	97.25	101.75
J-3	103.25	107.75
J-4	171.25	175.75
J-5	177.25	181.75
J-6	183.25	187.75
J-7	189.25	193.75
J-8	193.25	197.75
J-9	199.25	203.75
J-10	205.25	209.75
J-11	211.25	215.75
J-12	217.25	221.75
J-45	663.25	667.75
J-46	669.25	673.75
J-47	675.25	679.75
J-48	681.25	685.75
J-49	687.25	691.75
J-50	693.25	697.75
J-51	699.25	703.75
J-52	705.25	709.75
J-53	711.25	715.75
J-54	717.25	721.75
J-55	723.25	727.75
J-56	729.25	733.75
J-57	735.35	739.75
J-58	741.25	745.75
J-59	747.25	751.75
J-60	753.25	757.75
J-61	759.25	763.75
J-62	765.25	769.75

BRITISH

B-1	45.00	41.50
B-2	51.75	48.25
B-3	56.75	53.25
B-4	61.75	58.25
B-5	66.75	63.25
B-6	179.75	176.25
B-7	184.75	181.25
B-8	189.75	186.25
B-9	194.75	191.25
B-10	199.75	196.25
B-11	204.75	201.25
B-12	209.75	206.25
B-13	214.75	211.25
B-14	219.75	216.25

WESTERN EUROPEAN (E) CHANNELS

CHAN	BW(MHz)	PIX	COLOR	SOUND
2	47-54	48.25	52.68	53.75
3	54-61	55.25	59.68	60.75
4	61-68	62.25	66.68	67.75
S-3	118-125	119.25	123.68	124.75
S-4	125.132	126.25	130.68	131.75
S-5	132-139	133.25	137.68	138.75
S-6	139-146	140.25	144.68	145.75
S-7	146-153	147.25	151.68	152.75
S-8	153-160	154.25	158.68	159.75
S-9	160-167	161.25	165.68	166.75
S-10	167-174	168.25	172.68	173.75
5	174-181	175.25	179.68	180.75
6	181-188	182.25	186.68	187.75
7	188-195	189.25	193.68	194.75
8	195-202	196.25	200.68	201.75
9	202-209	203.25	207.68	208.75
10	209-216	210.25	214.68	215.75
11	216-223	217.25	221.68	222.75
12	223-230	224.25	228.68	229.75
S-11	230-237	231.25	235.68	236.75
S-12	237-244	238.25	242.68	243.75
S-13	244-251	245.25	249.68	250.75
S-14	251-258	252.25	256.68	257.75
S-15	258-265	259.25	263.68	264.75
S-16	265-272	266.25	270.68	271,75
S-17	272-279	273.25	277.68	278.75
21	470-478	471.25	475.68	476.75
22	478-486	479.25	483.68	484.75
23	486-494	487.25	491.68	492.75
24	494-502	495.25	499.68	500.75
25	502-510	503.25	507.68	508.75
26	510-518	511.25	515.68	516.75
27	518-526	519.25	523.68	524.75
28	526-534	527.25	531.68	532.75
29	534-542	535.25	539.68	540.75
30	542-550	543.25	547.68	548.75
31	550-558	551.25	555.68	556.75
32	558-566	559.25	563.68	564.75
33	566-574	567.25	571.68	572.75
34	574-582	575.25	579.68	580.75
35	582-590	583.25	587.68	588.75
36	590-598	591.25	595.68	596.75
37	598-606	599.25	603.68	604.75
38	606-614	607.25	611.68	612.75
39	614-622	615.25	619.68	620.75
40	622-630	623.25	627.68	628.75
41	630-638	631.25	635.68	636.75
42	638-646	639.25	643.68	644.75
43	646-654	647.25	651.68	652.75
44	654-662	655.25	659.68	660.75
45	662-670	663.25	667.68	668.75
46	670-678	671.25	675.68	676.75
47	678-686	679.25	683.68	684.75
48	686-694	687.25	691.68	692.75
49	694-702	695.25	699.68	700.75
50	702-710	703.25	707.68	708.75
51	710-718	711.25	715.68	716.75
52	718-726	719.25	723.68	724.75
53	726-734	727.25	731.68	732.75
54	734-742	735.25	739.68	740.75
55	742-750	743.25	747.68	748.75
56	750-758	751.25	755.68	756.75
57	758-766	759.25	763.68	764.75
58	766-774	767.25	771.68	772.75
59	774-782	775.25	779.68	780.75
60	782-790	783.25	787.68	788.75
61	790-798	791.25	795.68	796.75
62	798-806	799.25	803.68	804.75
63	806-814	807.25	811.68	812.75
64	814-822	815.25	819.68	820.75
65	822-830	823.25	827.68	828.75
66	830-838	831.25	835.68	836.75
67	838-846	839.25	843.68	844.75
68	846-854	847.25	851.68	852.75
69	854-862	855.25	859.68	860.75

FM CHANNEL FREQUENCIES

Channel-MHz	Channel-MHz	Channel-MHz	Channel-MHz	Channel-MHz	Channel-MHz
201....88.1	218....91.5	235....94.9	252....98.3	269....101.7	286....105.1
202....88.3	219....91.7	236....95.1	253....98.5	270....101.9	287....105.3
203....88.5	220....91.9	237....95.3	254....98.7	271....102.1	288....105.5
204....88.7	221....92.1	238....95.5	255....98.9	272....102.3	289....105.7
205....88.9	222....92.3	239....95.7	256....99.1	273....102.5	290....105.9
206....89.1	223....92.5	240....95.9	257....99.3	274....102.7	291....106.1
207....89.3	224....92.7	241....96.1	258....99.5	275....102.9	292....106.3
208....89.5	225....92.9	242....96.3	259....99.7	276....103.1	293....106.5
209....89.7	226....93.1	243....96.5	260....99.9	277....103.3	294....106.7
210....89.9	227....93.3	244....96.7	261....100.1	278....103.5	295....106.9
211....90.1	228....93.5	245....96.9	262....100.3	279....103.7	296....107.1
212....90.3	229....93.7	246....97.1	263....100.5	280....103.9	297....107.3
213....90.5	230....93.9	247....97.3	264....100.7	281....104.1	298....107.5
214....90.7	231....94.1	248....97.5	265....100.9	282....104.3	299....107.7
215....90.9	232....94.3	249....97.7	266....101.1	283....104.5	300....107.9
216....91.1	233....94.5	250....97.9	267....101.3	284....104.7	
217....91.3	234....94.7	251....98.1	268....101.5	285....104.9	

NOTES: (1) 88-108MHz reserved for FM broadcast service in Canada and U.S.

(2) 88-92MHz reserved for non-commerical educational broadcasting.

Tune in to the latest in state-of-the-art technology with a subscription to HAM RADIO MAGAZINE.

Rich Rosen, K2RR, our new Senior Technical Editor, is hard at work editing a big pile of juicy, interesting manuscripts that will be of interest to you. From Antennas to Television: simple projects to esoteric engineering designs, you'll find it all in Ham Radio Magazine.

Subscribe today. Ensure that you are 100% up-to-date on all the latest breaking developments in communications technology.

1 year regularly $19.50
Special A-5 reader price $16.50

HAM RADIO MAGAZINE
Greenville, NH 03048
(603) 878-1441
MasterCard VISA orders welcome

WB0ESF

A5 ATV MAGAZINE/RTTY JOURNAL
Back Issue "Copy Service"

We supply out of print back issues as good as the originals (Black/white only) from Vol. 1 No. 1. We also reprint requested articles as well as "specialty packages" For FSTV-MSTV-SSTV-FAX-RTTY TVRO-COMPUTERS-ROBOT 400 MODS.. ($3.00)
(See Cumulative Index)

ASK FOR OUR
"FREE INDEX ARTICLE GUIDE"
(SASE)

RALPH WILSON WB0ESF
4011 CLEARVIEW DRIVE,
CEDAR FALLS, IOWA 50613

A5 Amateur Television Magazine

[BACK ISSUES $2.50 EACH POSTPAID.]

THE CHAMP

BIRD MODEL 4304

NO ELEMENTS
25-1000 MHZ
RF SAMPLING PORT

AUTHORIZED BIRD DISTRIBUTOR

Webster

WEBSTER COMMUNICATIONS INC.
115 BELLARMINE
ROCHESTER, MI 48063
313-375-0420

CALL TOLL FREE
800-521-2333
800-482-3610

High Performance vhf/uhf preamps

EME
Scatter
Tropo
Satellite
ATV
Repeater
FM Equipment
Radio Telescope

NEW GaAsFETs!

	Freq. Range (MHz)	N.F. (dB)	Gain (dB)	1 dB Comp. (dBm)	Device Type	Price
P28VD	28-30	<1.1	15	0	DGFET	$29.95
P50VD	50-54	<1.3	15	0	DGFET	$29.95
P50VDG	50-54	<0.5	24	+12	GaAsFET	$79.95
P144VD	144-148	<1.5	15	0	DGFET	$29.95
P144VDA	144-148	<1.0	15	0	DGFET	$37.95
P144VDG	144-148	<0.5	24	+12	GaAsFET	$79.95
P220VD	220-225	<1.8	15	0	DGFET	$29.95
P220VDA	220-225	<1.2	15	0	DGFET	$37.95
P220VDG	220-225	<0.5	20	+12	GaAsFET	$79.95
P432VD	420-450	<1.8	15	−20	Bipolar	$32.95
P432VDA	420-450	<1.1	17	−20	Bipolar	$49.95
P432VDG	420-450	<0.5	16	+12	GaAsFET	$79.95

Advanced Receiver Research

Preamps are available without case and connectors: subtract $10. Other preamps available in the 1 - 900 MHz range. Prices shown are postpaid for U.S. and Canada. CT residents add 7-½% sales tax. C.O.D. orders add $2. Air mail to foreign countries add 10%.

Box 1242 • Burlington CT 06013 • 203 582-9409

SCRRBA

Southern California Repeater and
Remote Base Association
P.O. Box 5967
Pasadena, California 91107

SOUTHERN CALIFORNIA BAND PLANS
July 1982

10 METERS 28.00-29.70 MHz

Pair	Input	Output	
1	29.52 MHz	29.62 MHz	20 KHz channels
2	29.54	29.64	16F3 emissions
3	29.56	29.66	100 KHz repeat spacing
4	29.58	29.68	107.2 or 156.7 Hz CTCSS input protection re-
Simplex	29.50	29.60*	commended

6 METERS 50.00-54.00 MHz

	800 KHz Repeat Spacing		300 KHz Repeat Spacing		
Pair	Input	Output	Input	Output	
1	52.02 MHz	52.82 MHz	52.20 MHz	52.50 MHz	20 KHz channels
2	52.04	52.84	52.26	52.56	16F3 emissions
3	52.06	52.86	52.28	52.58	300 KHz repeat spacing
4	52.08	52.88	52.30	52.60	800 KHz repeat spacing
5	52.10	52.90	52.32	52.62	CTCSS input protection re-
6	52.12	52.92	52.34	52.64	commended
7	52.14	52.94	52.36	52.66	
8	52.16	52.96	52.38	52.68	
9	52.18	52.98	52.40	52.70	
10	52.22	53.02	52.42	52.72	
11	52.24	53.04	52.44	52.74	

Simplex 52.46(Remote Base Only) 52.48 52.525* 52.54 52.76 52.78 52.80 53.00

75 CENTIMETERS 420-450 MHz

AUXILARY LINKS & ATV	ATV, SSB, AM & CW	ONE WAY LINKS	REPEATER & REMOTELY CONTROLLED STATIONS input . output
420	430	438 440	445 450

440-450 MHz 25 KHz channels, 20F3(±5 KHz deviation) emmissions, 5 MHz repeat spacing
Simplex 439.500(ATV communications, 20F3 emissions) 446.000 446.500
Test Pair 441.875 input/446.875 output
ATV Visual 434.000 426.250
ATV Aurual 438.500 430.750 (±25 KHz deviation)

23 CENTIMETERS 1215-1300 MHz(1240-1300 MHz**)

ATV Ch. #	Channel	Viedo Carrier	FM Relay & Links*** Channels	Weak Signal Channels	Satellite Channels**
1	1240-1246	1241	1246-1252	1295-1297	1260-1270
2	1248-1258	1253	1258-1264		
3	1260-1270	1265	1270-1276		
4	1272-1282	1277	1282-1288		
5	1284-1294	1289	1294-1295		
			1297-1300		

13 CM BAND PLAN

December, 1976

2400 mHz ATV simplex.
2325-2425 ATV repeat (AM).
2380 FM ATV 10 mHz dev.

Vestigal sideband filtering required on Ch. 1 and is recommended for all other ATV channels.

* National simplex frequency
** Per 1979 WARC
*** Standards under development

ATV, HOW DID WE GET THESE MODES?

by Ken Barber
W2DTC
66 Madison Avenue
Red Bank, New Jersey 07701

In response to your call for a "knowledgeable old timer", I'm sure that others will qualify better than I for the title, but; perhaps my little story can be compiled with others to give the big picture as to how various ATV modes got "standardized."

Before the time of easy access to the Motorola T44 tranceiver, individuals in the New York/New Jersey area were experimenting with self excited 6J6 triode oscillators modulated by 12BH7's and similiar low power tubes. Receivers were usually modified UHF converters into standard black and white tv sets. The antenna was generally a small co-linear array.

As it was later to be found out, stations were on the air night after night looking for contacts, but because of a lack of standard frequency coordination, a lack of power and the directivity of the antennas, no one was able to make a fast scan connection. Eventually, two stations did meet: Frank Madaffore K2KVT of North Brunswick, NJ and K2KQZ Box Neuhaus of Staten Island, New York. They decided that since fast scan was workable and enjoyable it would be necessary to go for crystal control of the transmitter. Around this same period which was the late 1960's a commercial mobile FM sales and service center in the northern New Jersey area began selling used Motorola T44 transceivers to radio amateurs at very reasonable prices. K2KVT immediately saw the beauty in this T44 beast since the receiver high IF was perfect for injection into an unmodified tv set for the video pickoff and the rest of the rig was perfect for good FM audio; thus was born the on-carrier audio which became the standard for the cluster of stations in central New Jersey and eastern Pennsylvania.

For choice of frequency, K2KQZ designed a band chart which would provide for 5 fast scan channels between 420 and 450 MHZ (see attached sheet). By elimination, channel 4 or 439.25 MHZ was chosen. Channels 1 and 2 were rejected because they were too far away in frequency for converting the T44 which was designed for service in the 450 to 470 MHZ band. Since this plan was conceived in 1969, and an evaluation of fast scan interference had not yet been made, channel 3 was rejected because it was too near to the 432 MHZ DX group and channel 5 was rejected because of the density of 440 to 450 FM up and down links for existing 2 meter repeaters.

K2KVT regularly got on 2 meters and gave fast scan ATV a real boost. A number of stations got sucked into K2KVT's sales pitch and eventually got on the air with the T44. (so did I in 1969...W2DTC). The beauty of the T44 for the beginner was that by mearly getting crystals and tuning up the transceiver, the new guy could talk to other stations on the ATV circuit and decide whether he wanted to go further with ATV, without an investment of modulators, cameras or tv sets. Another advantage of on-carrier audio was that because of the sensitivity of on-carrier receivers a weak 439.25 MHZ signal would be detected long before the sync bars appeared on a subcarrier set-up; thus, some of the new guys with low power and poor antennas could be heard off the side of the beam of the major stations on the air and obtain advice from the more knowledgeable stations at a time when it was needed the most.

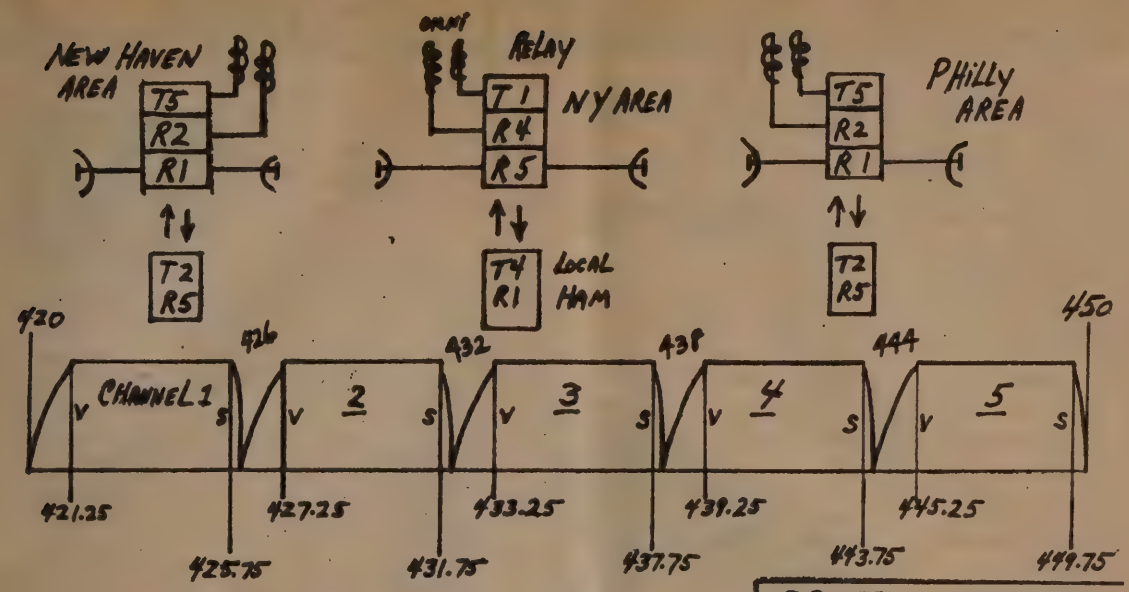
On the subject of antenna polarization, I believe that an early thrust to get "new blood" into fast scan was directed at 432 MHZ DX'ers. The 432 people were already set-up for horizontal polarization and could provide a substantial argument for its use. The other reason for horizontal polarization was the excepted practice for a new station to try to emulate the best signal on the bank which at the time was K2KVT.

The original coordination or ATV talk back channel started as 146.58 MHZ which was listed in FM journals as a simplex channel. It was disguarded after several years for two reasons, the non ATV activitiy increased dramatically and some ATV'ers were getting cross hatch and even tearing on strong ATV receive signals as a result of the third harmonic of their own two meter rig. How did the chice of 145.825 MHZ come about? Well one guy with a scanner listened on each frequency below 146 MHZ until a real quiet channel was found.

In a nutshell, the creation of ATV "Local standards" was a direct result of the choice of one or two individuals whose personality, technical expertise, influence and hard work became the reason for others getting on fast scan. Had the first guys been from the 2 meter/440 MHZ up link/down link crowd, the antenna polarization would surely have been vertical. Had the first guys been involved in commercial tv in some way the chances are that their group would be using the audio sub-carrier system. Since most ATV'ers had difficulty building a station that could put in a snow free picture at 30 miles, it really didn't matter what guys 200 miles away were doing. The result of course is that clusters of ATV'ers have "local standards" that do not interface with others.

The big question as to what to do about standardization on a national basis is a touch one. The A5 READER QUESTIONAIRE is a good start to gathering data which may help decide the least painful way to approach the standardization question. I expect to put my two cents in with submission of another letter in the near future, I hope others will respond also.

CHANNEL 1-4 PAIRED. CHANNEL 1 IS BASE CHANNEL 4 IS LOCAL
" 2-5 " " " 5 " " " 2 " "



ORIGINAL 5 CHANNEL FSTV
BANDPLAN FOR NE U.S. 1969
BY K2KQZ ATV "PIONEER"

SPECTRUM ALLOCATION
Robert Renfrew JR 2.3.69
K2KQZ

A5

ATV

AMATEUR TELEVISION MAGAZINE

DECEMBER "VIDEO SPECIALS"

"JUST IN TIME FOR CHRISTMAS"

(NO FOREIGN SALES)
A5 SUBSCRIBERS ONLY

NEW! Panasonic VHS

PV1265 2-4-6 Hr. VHS — LCD Digital clock/timer. Tape counter, pause/still frame, single frame advance, fast forward and reverse visual search. PAN PV1265

$489.95

F.O.B. COD Only
(NO TAX TO OUT OF STATE BUYERS)

Iowa residents add 3% sales tax.

VISA

master charge

A5 "MONTHLY SPECIALS"

We have obtained a "dealership" through a large midwest wholesaler supplier in Des Moines, Iowa and each month will try to advertise their "monthly specials" relating to video gear. We add approximately 10% profit (which goes back into A5 Magazine) and you pay shipping costs (COD). We're not trying to "get rich", just offer some great buys at hundreds of dollars of savings by elimnating the "middle guy" with high overhead costs! You must act fast on these deals, as they are two months old by the time you read them. Send us your money order, bank draft, certified cashier's check or VISA/MC number and expiration date (no personal checks). Iowa residents must pay state sales tax of 3%. —QCD

QCD Publications

How do we get alot of our news items and articles? Besides attending "Shows" and hamfests, club meetings, making many phone calls to our men in Washington and Newington, contact sourses and personal correspondence with you the subscriber, we subscribe to over $500 worth of publications per year: QST, Ham Radio, 73, CQ, Worldradio News, 6800 Micro Journal, TRS80 News, Computer Shopper, 80 U.S., CQ-TV (Britian), TV Amateur (Germany), Computer Trader, RTTY Journal, VHF Communications, SMIRK NL, SWOT NL, K2UYH, NL, AMRAD NL, QEX (ARRL) NL, Virginia Teletype NL, Southern California ATV Club NL, TVRO Digest, Coop's Satellite Digest, AAA5 NL, Westlink NS, W5YI Reports, FCC Federal Register, W6ORGy Notes, AMSAT NL, Eimac News, W6VIO NL, Video World Magazine, CQ Ham Radio Japan, The Ontario Canadian Amateur, Rocky Mountain VHF Society NL, Australian ATV News and many more that come in each regularly each month!

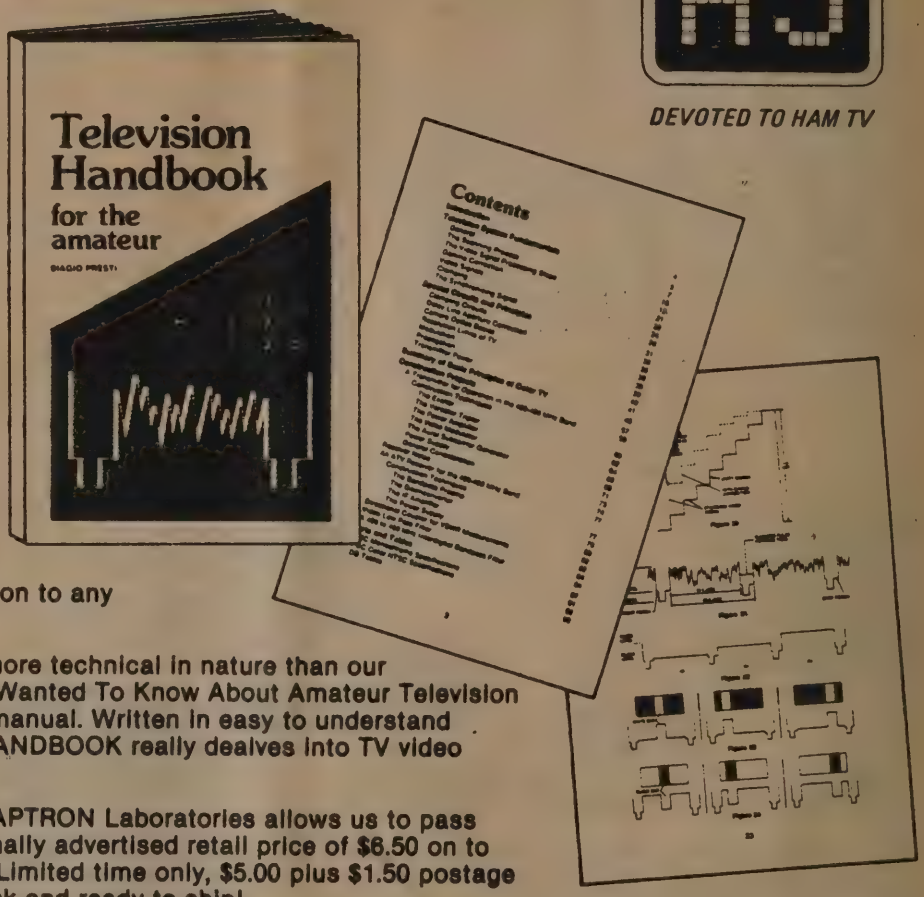
"It is just simply too expensive these days to subscribe to every Amateur publication. Let A5 ATV MAGAZINE be your clearing source for the latest information and articles concerning Amateur Radio Specialized Communication!"

Television Handbook
for the amateur

by Biagio Presti

A5

DEVOTED TO HAM TV



NEW! A complete, easy to read, highly illustrated book covering the fascinating subject of television from basic theory to operating circuits. Included are chapters on: fundamentals, special circuits and principles, Color TV, construction projects and reference charts and tables.

This book will be a useful and valuable addition to any technical library.

This Handbook is much more technical in nature than our "Everything Your Always Wanted To Know About Amateur Television *but were afraid to ask" manual. Written in easy to understand language, TELEVISION HANDBOOK really dealves into TV video theory fundamentals.

A special purchase from APTRON Laboratories allows us to pass the savings from it's normally advertised retail price of $6.50 on to you the "A5" subscriber! Limited time only, $5.00 plus $1.50 postage and handling. Now in stock and ready to ship!

Send me__copies of "TELEVISION HANDBOOK FOR THE AMATEUR"

$5.00 per copy plus $1.50 postage/handling
Save on postage for mass-purchases via U.P.S.

I am am not a subscriber to A5 ATV Magazine. Please send information.

Name_____ _____**Amateur Call**_____

Street Address_____

City_____**Zip**_____

Mail to: QCD Publications, P.O. Box H, Lowden, Iowa 52255-0408 .
Allow 2-3 weeks for delivery

Turn a few hours work into years of fun with Amateur Television.

$34.95

ATV Converter *

Convert any TV receiver to a fast scan ATV monitor without incurring the expense of commercially made equipment. The Communication Concepts Inc. converter allows you to monitor 430MHz ATV signals using channel 3 or 4 on a standard TV set, without modification to the set. The kit consists of a low noise high gain RF amplifier (MRF-901), a double balanced mixer and a Varicap® controlled local oscillator. By using Varicap diode tuning, the converter can be placed directly at the receiving antenna and tuned remotely with a standard 10K potentiometer, if desired. This technique greatly increases the signal strength at the TV receiver by reducing the capacitive loss normally encountered when using high frequency signals on coax lines.

The converter requires an external 12 volt regulated power supply at 40 milliamps. For optimum performance, the converter should be mounted in a metal enclosure; thereby providing an RF shield.

ATV-1-PK Kit includes detailed step-by-step instructions, printed circuit board, and all electronic components as shown

ATV-1-PCB Printed circuit board only. **$10.00**

ATV-1-I Instruction manual only. **$5.00**

***Circuit board design license authorized from P.C. electronics, Arcadia, California 91006**

Audio Squelch Control

You have a squelch on your 2 meter equipment; why not add a squelch to your ATV monitor. Now you can avoid the major problem of operating ATV—the annoying hiss and static when the signal is not present. With the ATV squelch, you no longer have to turn the volume down when the signal disappears and risk the chance of missing a signal.

The squelch easily connects to the TV receiver audio stage without modification of the TV, since the squelch circuit contains its own audio output stage. You must provide your own speaker. Operator safety is provided by using transformer isolation between the receiver and the squelch circuit, thus eliminating the shock hazard when using a "hot chassis" type TV receiver.

$34.95

SIL-K Complete Kit—includes a detailed instruction manual, printed circuit board and all electrical components. Kit does not include case, speaker and regulated power supply (10 to 15 volts @ 250mA).

SIL-PCB Printed circuit board only.

100 Watt Linear Amplifier

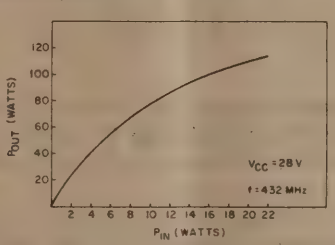
Now you can get on the air with a high power 100 watt class B linear amplifier for SSB-FM or ATV on the 420 to 450 MHz band and still not spend a lot. This kit is described in Motorola engineering bulletin EB-67 and is available in a number of configurations. For full output, a minimum of 16 watts is required for excitation with an input SWR of not higher than 2:1. Output will maintain stability with a 3:1 collector mismatch at all phase angles. A designed-in low-pass filter suppresses the 2nd harmonic to at least 63 dB down. An external power supply capable of providing 28 VDC, regulated, at 10 amps is also required.

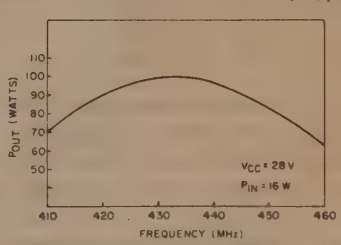
$109.95

KEB-67-PK Kit includes detailed step-by-step instructions, printed circuit board, and all electronic components as shown.

KEB-67-PCB Printed circuit board **$14.00**

KEB-67-I Instruction manual only. **$5.00**





P.C. Boards

The FCC does not allow us to sell Broadband RF amplifier kits in the HF range, therefore we can only offer the printed circuit board and parts on a piece-by-piece basis.

140 watt power amplifier as described in Motorola engineering bulletin EB-63. **EB-63-PCB**

100-180 watt power amplifier as described in Motorola application note, AN-762. **AN-762 PCB**

300 watt power amplifier as described in Motorola engineering bulletin EB-27A. **EB-27A PCB**

Transformers, transistors and other parts are also available.

We also specialize in hard-to-find components.

In addition to our kits, we also stock parts for other Motorola application notes and engineering bulletins. We have an in-depth stock of Motorola VHF and UHF transistors, Underwood metal clad mica capacitors (Unelco), Kemet chip capacitors, Cambion RF chokes and Ferroxcube Ferrite beads and RF chokes plus other difficult to find parts. If you are having trouble finding a part; call us; we probably have it in stock.

BANKAMERICARD VISA

"WE SUPPORT AMATEUR TELEVISION AND A5 MAGAZINE"

master charge

Communication Concepts Inc.

2648 North Aragon Ave. • Dayton, Ohio 45420 • (513) 296-1411

Channel 17

N6WQ 1240-1300 MHZ. ATV BLOCK DOWNCONVERTER

A5 ATV MAGAZINE
"Feature Article"

BY Roland Soucie N6WQ
3104 Pierce Avenue,
Costa Mesa, California, 92626

The state-of-the-art is rapidly changing, especially with semiconductors. One has to read 5 or 6 trade journals a week to attempt to keep up. My unread stock is growing. The GaAs FET captured my fancy, enabling me to see Satellite pictures from 22,000 or so miles snow free. I wanted to see my local 23 CM ATV repeaters without snow and logically I turned to the GaAs FET to do the job again. With encouragement and guidance from Chip Angle N6CA, Louis Anciaux WB6NMT, and Tom Ohara W6ORG I set down tape on mylar and began. If the specs measured on the prototype seem right for your needs, and you've got $75 or so to invest, proceed directly to 'go'.

SPECIFICATIONS:

Passband	1220 - 1300 MHz
Noise Figure (overall)	0.95 dB
Conversion Gain	35 dB
Bandwidth (-3 dB)	75 MHz
(-20 dB)	250 MHz
Passband Ripple	<.25 dB over any 6 MHz segment from 1220 - 1295 MHz
Spurious and Image	45 dB Min.
Voltage Tuning Range	3 MHz total
IF output	TV Ch. 7-, 8, 10, 12, 13+ for 1241, 1253, 1265, 1277 and 1289 respectively.
Input Voltage	+10 to +13 VDC
Input Current	100 Mills Nominal
Output Impedance	75 Ohms unbalanced

DESCRIPTION:

The first two stages are high gain, low noise, GaAs FET RF amplifiers. The first stage employs an NEC 72089 which is normally used in satellite service at 4 GHz. This stage is biased for optimum noise figure. The second stage uses a less costly Mitsubishi MGF 1200. At 1.3 GHz the noise figure of the two are nearly identical so builders should strongly consider using MGF 1200's in both slots. The input and output impedance of both stages is 50 ohms. The Bandpass filter has 3 resonators and provides an image and spurious rejection greater than 45 dB. The double-balanced mixer is a Mini-Circuit Labs TFM-4 which is rated to 1250 MHz. The only parameter which noticeably degrades at 1.3 GHz is the port isolation which at 20 dB is still adequate. The local oscillator is a free running fundamental type. The frequency is mainly controlled by the tuned circuit in the base. A small variation in frequency is achieved by varying the suppy voltage which varies the collector-base capacity. This change pulls the oscillator about 3 MHz total. Since the oscillator, as fabricated, is stable over a wide temperature range, the voltage tuning range is sufficient to overcome any mistuning on the part of the associated TV tuner, or oscillator variation. Oscillator output is set to +7 dBm at a nominal frequency of 1071.75 MHz.

The low pass filter after the mixer rolls off a 300-350 MHz. This filter effectively shunts the mixer IF port to the LO and RF frequencies. The IF amplifier is a hybrid low noise type. It has 15 dB or more gain from 30-900 MHz.

N6WQ 1240-1300 MHZ. ATV BLOCK DOMNCONVERTER CONTINUED. . .

DC to power the converter is fed up the 75 ohm output coax. A 5 volt regulation in the converter maintains optimum bias on the RF amplifiers while still allowing a minor amount of tuning by varying the voltage from +10 to +13 volts.

The power supply employs a 5 volts regulator because that was in my junk box. Substitutions are expected but you'll have to work out your own control arrangement to provide the correct output range. Keep the low pass filter component leads short, especially the capacitor leads to ground.

CONSTRUCTION:

The PC board material is made by 3M and is called CuCLAD. The Er is 2.33. Any teflon board 1/16" thick will do, but recalculation of line width and length will be required for equivalent results. The holes should all be plated through, and between .020-.030" in diameter.

Step 1: Drill out the 5 connector holes and 2 mounting holes to clear a #4 screw.

Step 2: Fabricate the bandpass filter and solder to the PC board. Connect a sweep generator to the input and a 50 ohm detector on the output and adjust the coax center conductors for 3 dB bandwidth of 75 MHz, centered at 1257 MHz. I used .141" semi-rigid coax to temporarily interface to the PC board filter connections. The -20 dB points should be 250 MHz wide. Temporarily tack solder the resonator center conductors in place.

Step 3: Fabricate the mixer, LO, and IF stages as shown. Temporarily stand the oscillator output capacitor up on the board. Solder a .141" semi-rigid coax to the top of the cap. Connect the supply to the IF output. Connect the semi-rigid coax to a spectrum analyzer. Adjust the trimmer capacitor for a frequency of 1071.25 MHz. The output level should be approximately +7 dBM. If not within -1 +2 dB modify the emitter resistor value. Replace the coupling capacitor.

Step 4: Put into the filter a 1257 MHz signal. The conversion gain should be +9 dB.

Step 5: Add all RF amplifiers components except the GaAS Fets, L1, L4, and the source bypasses and resistors. Mount the 5 volt regulator and associated components. Turn on the supply once again and verify that the 5 volt regulator output is correct.

Step 6: Before installing the GaAS FET be sure that your soldering iron is isolated by a transformer from the AC line. Use a 600 or 700 degree small tip on the iron.

Cut the gate and two source leads to 0.1" long. Place a ferrite bead on the drain lead of each device. Bend each source lead up vertically close to the body. Lay the devices on the PC board in their respective positions. Touch the iron tip to ground on the PC board, then quickly solder the gate and drain leads down. Add the source bypasses, Rs resistors, L1, and L4. Start with a source resistor of 120 and 100 ohms for the first and second stages respectively.

Step 7: Connect a sweep generator to the RF input. Keep the input level below any signs of output compression. Fine adjust the bandpass filter for a flat response from 1220-1295. The detector at this time is connected to the power supply TV output. Any 6 MHz segment between 1220 and 1295 MHz should have less than 0.25 dB ripple. Solder the bandpass filter resonator center conductors permanently.

Step 8: Put a 50 ohm coaxial termination on the RF input.

Step 9: Measure the voltage at the source of the first stage. Measure the voltage at the junction of the 10 ohm resistor and the microstripline. The difference should be approx. 3 volts. The voltage across Rs divided by its value should yield a drain current of 10 mills. Select a value for Rs if required to yield these results. This will product optimum noise figure. 100 ohms for Rs on the second stage should produce similar results and need not be optimized.

Step 10: Apply a noise source to the input and a noise meter to the power supply TV output. Note the noise figure. Spread or squeeze the turns of L1 and L4 as needed to minimize the reading.

PARTS LIST

L1,L4	3T #30 .052 Dia.
L2,L5	1T #22 .085 Dia.
L3,L6	Micrometals T12-6 Bead on Drain Lead
L7	95 Nanohenry - 4T #26 Closewound on 220 K 1/4 W carbon Resistor
L8	1T #20 .150 Dia. 1/8" Long
RFC 1,2	1.5 - 1.8 Microhenry RF Choke
RFC3,4	0.82 Microhenry RF Choke (Make certain self resonance is 240 MHz or higher)
1000 P	1000 pF Ceramic Chips
180 P	180 pF Mica or Ceramic Chips
1.5P, 8P	1.5 pF, 8 pF Ceramic Disc. N.P.O.
1P	1 pF Tubular Ceramic, Axial Lead
1-10 pF	Johanson Type Piston Trimmer Capacitor
NE 72089	NEC GaAs FET (MGF 1200 can substitute)
MGF 1200	Mitsubishi GaAs FET
MRF 901	Motorola N.P.N.
MCL	Mini-Circuit Labs TFM-4 Double Balanced Mixer
MC 78L05AHC	Motorola 5V Linear Regulator
IC1	Hybrid I.F. Amplifier - NEC 5156
Rs	Select 1/8 w Carbon comp. resistor between 33-120 ohms for voltage between drain and source = 3V and drain current of 10-12 MA. (Measured across Rs)
Circuit Board	3M Cu Clad ER = 2.33 Holes plated thru .020 - .030 Dia.

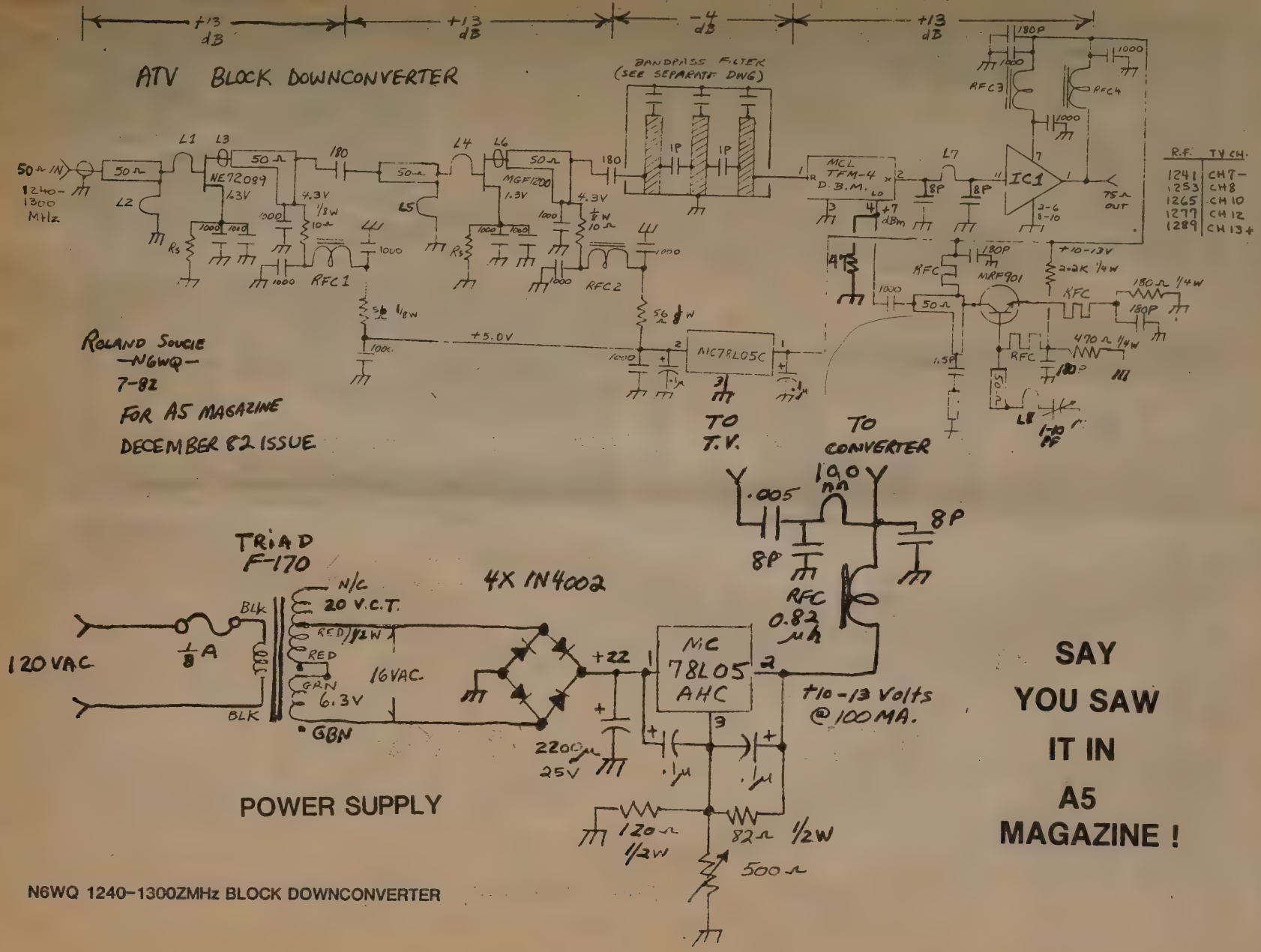
Testing each step of the way was necessary in order to ascertain that the design parameters of each stage were being met. It also almost guarantees success when you hook your converter to your antenna.

Fabricate an enclosure from 1/32" sheet brass. Seal all joints with solder. Apply RTV to all screw heads. Mount the converter within 1-2 feet of the antenna in order to take full advantage of the low noise figure. Don't worry about how long the 75 ohm output coax is, you'll have ample output for any TV.

The cost estimate of $75 can be met if a pair of MGF1200's are used. With the NEC device at $45 it's hardly worth the differential, I cannot see the difference on the monitor.

The circuit boards will soon be available from WA6SVT. Cost is not yet determined but TEFLON is at least 5 times more expensive than epoxy glass so don't get mad if the boards cost seems out of line.

FINISHED PROJECT/CIRCUIT BOARD AND PARTS LAYOUT
N6WQ 1240-1300 MHz BLOCK DOWNCONVERTER


+13 dB
+13 dB
-4 dB
+13 dB
ATV BLOCK DOWNCONVERTER
BANDPASS FILTER (SEE SEPARATE DWG)
50Ω IN 1240-1300 MHz
NE72089
MGF1200
MCL TFM-4 D.B.M. LO
IC1
75Ω OUT
R.F. TV CH.
1241 CH7-
1253 CH8
1265 CH 10
1277 CH 12
1289 CH 13+
ROLAND SOUCIE -N6WQ- 7-82
FOR A5 MAGAZINE DECEMBER 82 ISSUE
TO T.V.
TO CONVERTER
MRF901
NIC78L05C
TRIAD F-170
4X IN4002
120 VAC
16VAC.
6.3V
20 V.C.T.
NiC 78L05 AHC
+10-13 Volts @100MA.
POWER SUPPLY
SAY YOU SAW IT IN A5 MAGAZINE !
N6WQ 1240-1300ZMHz BLOCK DOWNCONVERTER
Channel 22

N6WQ 1240-1290 MHz
PARABOLIC ANTENNA

Specifications:

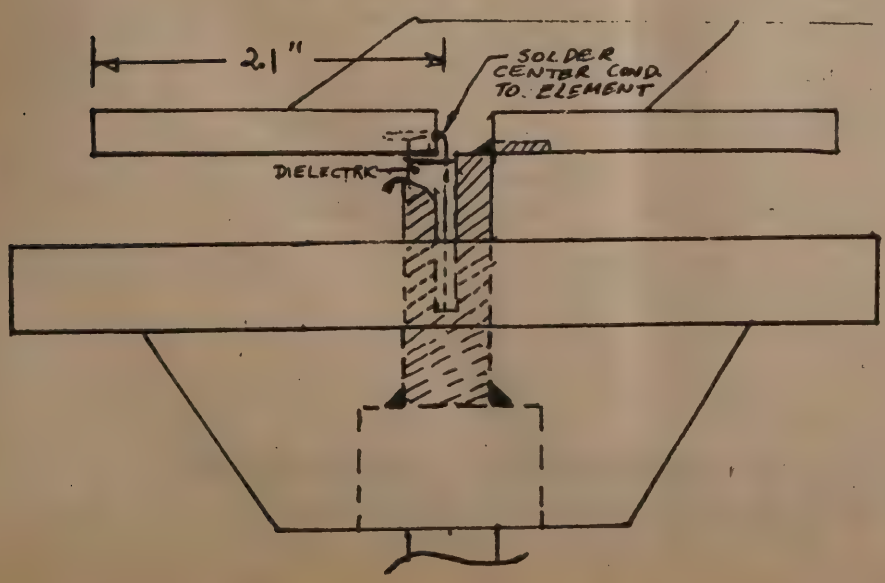
Bandwidth - >15dB Return Loss
from 1240 -1290 MHz
Gain - >17 dbd

Assembly:

1. Acquire A 3 foot diameter M.D.S. (2.15 GHz) commercial parabolic antenna from your local Channel Master Co. Rep. (about $42)
2. Remove the screws securing the cover to the feed support.
3. Remove and discard the cover.
4. Cut one dipole element to a length of 3/8 inch.
5. Peel the other dipole element down using longnose pliers as shown.
6. Cut off the excess as shown. When peeled down sufficiently the top of the peeled part will end up about 1/4" below the new element.
7. Prepare dielectric and center conductor as shown.
8. Solder one brass dipole element to the coax center conductor.
9. Solder the other brass dipole element to the tab prepared in step 4.
10. Replace crimp-on 'N' connector with good UG-21 type.

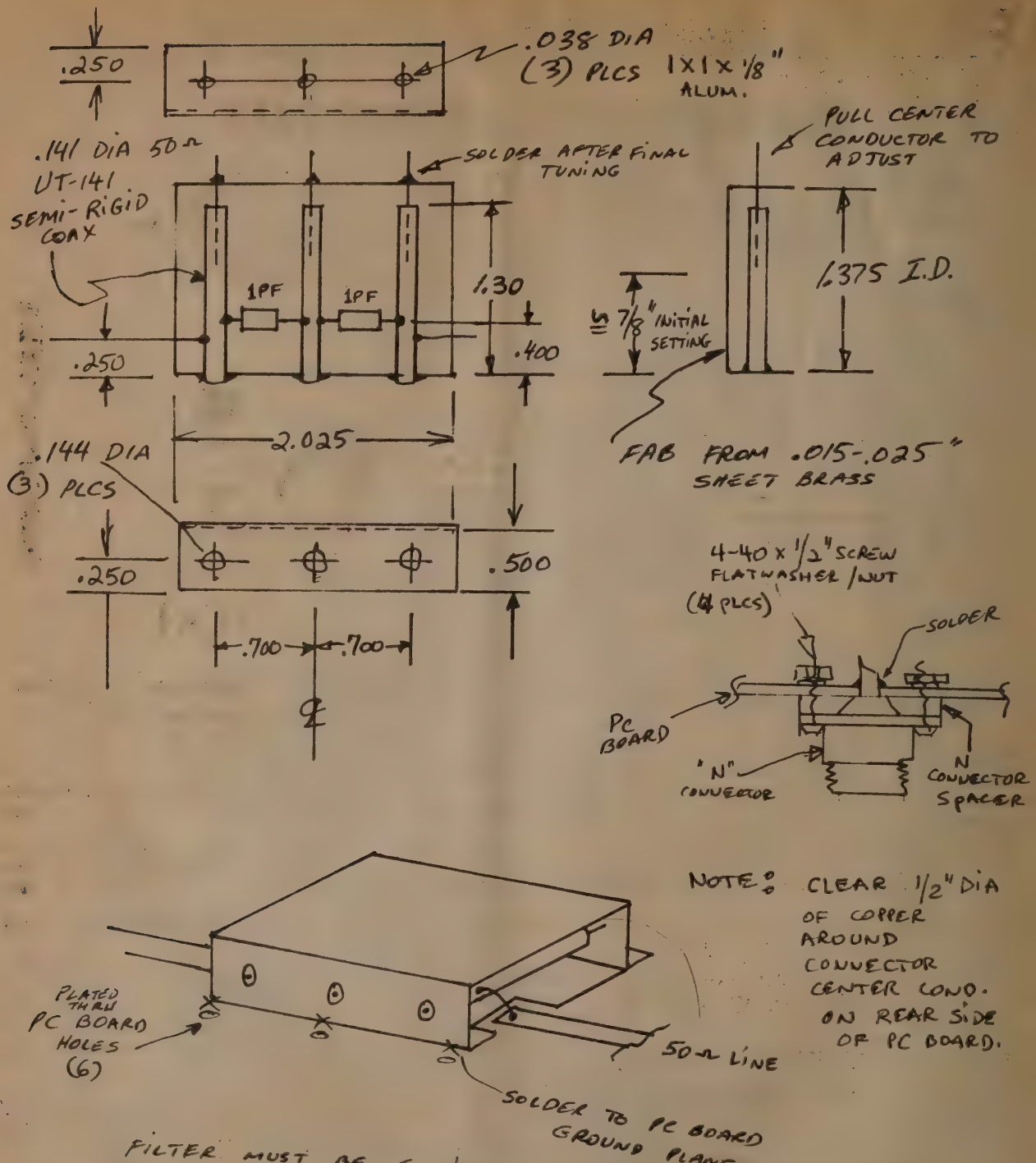
Potting

1. Cut a piece of 8" x 16" soft cardboard.
2. Spray cardboard with mold release, teflon, or anything slippery.
3. Put polyurethane foam Part A in one cup (1/4 cup) and Part B in another (1/4 cup).
4. Wrap cardboard tightly around black plastic base, forming a chimney.
5. Mix 2 cups together and quickly pour into feed. Let grow up and out of chimney vertically at will.
6. After 30 minutes remove chimney and saw off excess foam with a long serrated kitchen knife.
7. Paint with epoxy paint.
8. Assemble feed horn to Parabola and PRESTO!!



2"L x 1/4" O.D. BRASS TUBING

JANUARY 83 A5 ISSUE;
2300-2450 MHZ. PARABOLIC ANTENNA!



BANDPASS FILTER FOR N6WQ 1240-1300 MHZ. ATV BLOCK DOWNCONVERTER PROJECT

FAST SCAN ATV $399 Delivered

ALL YOU NEED IN ONE BOX

Connect to the ant. terminals of any TV set, add a good 450 antenna, a camera, and you are there . . . Show the shack, home movies, computer games, etc.

FEATURES

- 10 WATT PEP OUTPUT ON SYNC. DC RESTORED MODULATOR. ADJUSTABLE SYNC. EXPANDER.
- STANDARD FREQ. AVAILABLE: 439.25, 434.0, AND 426.25 MHZ SPECIFY XMTR FREQ. AND DOWN-CONVERTER OUTPUT ON CHANNEL 2, 3, OR 4.
- BROADCAST STANDARD 4.5 MHZ SUBCARRIER SOUND WITH HIGHGAIN MIC AMP.
- 8 MHZ BANDWITH MODULATOR FOR HIGH RESOLUTION VIDEO, COLOR, AND COMPUTER ALPHA-NUMERICS.
- BUILT-IN REGULATED AC POWER SUPPLY.
- TUNEABLE DOWNCOVERTER COVERS 420 to 450 MHZ. CONTAINS LOW NOISE .9db NE64535 PREAMP, PLUS HOT CARRIER DOUBLE BALANCED MIXER.
- STILL $399 DELIVERED USA VIA UPS. TWO FOR $750, OR 5 OR MORE 10% OFF.
- SMALL 10.5x3x9 CONTINUOUS DUTY

OPTIONS

- DM–1 RF/VIDEO DETECTOR MONITOR INSTALLED WITH BNC OUTPUT **$30**
- TWO FREQUENCY EXCITER INSTALLED WITH XTALS ON 439.25, 434.0, OR 426.25. NOT AVAILABLE WITH CA–1 . . . . . **$30**
- MIRAGE D1010 LINEAR AMP W/"N" CONN . . **$299**
- SET UP TO DRIVE MIRAGE D1010 AMP WITH SYNC STRETCHER IN TXA5 ADJUSTED FOR 90 WATTS PEP $20
- PROVISION FOR EXTERNAL 12 TO 14 VDC FOR MOBILE OR PORTABLE **$30**
- ON CARRIER AUDIO MODULE CA–1 INSTALLED FOR THOSE AREAS THAT DO NOT USE STANDARD SUBCARRIER OR TWO METERS FOR AUDIO . . . **$50**

★ IF YOU WISH TO BUILD YOUR OWN SYSTEM, SEE THE BASIC 4 MODULE PACKAGE.

ACCESSORIES:

48 element J Beam antenna	$75.75 + ship.	Hitachi HV62 B & W TV camera	$205 ppd
450 Isopole omni antenna	$65 ppd	Hitachi GP41D color TV camera	$490 ppd
Saxton 8285 low loss coax, 100'	$41 ppd	Mirage D1010N 100 watt amp	$299 ppd

Tech class or higher license req. for purchase. Normal shipment within 3 days on charge card or Postal Money Order.

P.C. Electronics, 2522 S. Paxson Ln., Arcadia CA. 91006 213/ 447-4565 TOM W6ORG MARYANN WB6YSS

9-82

Channel 25

P.C. ELECTRONICS

SEPT 82 CATALOG OF PC BOARDS AND MODULES FOR YOUR COMMUNICATIONS SYSTEM

Solid State Fast Scan ATV Modules

CALL OR WRITE FOR LATEST CATALOG AND PRICES!

The Basic Four Modules

"New heavier heat sink"!

(Improved version from TVC-1 in Ch. 14 of ARRL Handbook)

1. TXA5-4 ATV EXCITER/MODULATOR ..... **$89 ppd**

This wired and tested module is designed to drive the Motorola MHW-710 module in the PA5 10 watt linear amp. The crystal in the 100 mHz region keeps harmonics out of two meters for talk back. The video modulator is full 8 mHz for computer graphics and color. Requires 13.8 vdc reg @ 70 ma. Tuned with xtal on 439.25, 434.0, or 426.25 mHz. Built in sync expander.

Two Frequency Exciter ..... **$115 ppd**

Set-up with D1010-N 90W amp..... add **$20 ppd**

2. PA5 10 WATT ATV POWER MODULE ..... **$89 ppd**

The PA5 will put out 10 watts RMS power on the sync tips when driven with 80 mw by the TXA5 exciter. 50 ohms in and out, plus bandwidth for the whole band with good linearity for color and sound. Requires 13.8 vdc regulated @ 3 amps. MHW-710-2 ..... **$60 ppd**

3. FMA5 AUDIO SUBCARRIER GENERATOR ..... **$29 ppd**

Puts audio on with your camera video just as broadcast TV does at 4.5 mHz. Puts out up to 1 v p-p to drive the TXA5 or VM-2, 3, or 4 modulators. Requires low Z mic (150 to 600 ohms), and +12 to 18 vdc @ 25 ma. Works with any xmtr with 5 mHz video bandwidth.

4. TVC-2 ATV DOWNCONVERTER ..... **$55 ppd**

Stripline MRF901 (1.7 db NF) preamp and double balanced mixer module digs out the weak ones but resists intermods and overload. Connects between uhf antenna and TV set tuned to channel 2 or 3. Varicap tunes 420 to 450 mHz. Requires +12 to 18 vdc @ 20 ma.

Super sensitive TVC-2L with NE64535 preamp (.9db NF) stage . . . **$69 ppd**

TVC-4 ATV DOWNCONVERTER ..... **$89 ppd**

This is a packaged version of the TVC-2 converter with internal power supply. Has BNC input and F output connectors.

Also available with the NE64535 (TVC-4L) ..... **$105 ppd**

Size: 5 1/4 X 2½ X 7 inches.

♦♦♦♦♦♦♦♦♦♦♦♦♦ Package Specials ♦♦♦♦♦♦♦♦♦♦♦♦♦

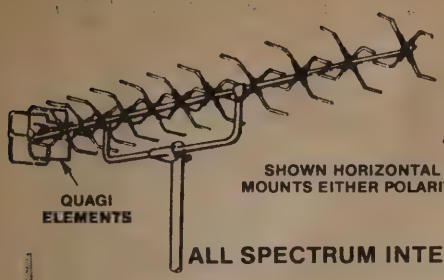
TXA5, PA5, FMA5, and TVC basic module package . . . . . (Reg. $262). . $249 ppd

OPTIONS: 2 frequency exciter ..... add **$26**
NE64535 low noise downconverter ..... add **$14**
Packaged TVC-4 downconverter ..... add **$34**
Magnacraft W120X-14 coax relay ..... add **$41**

Clubs & Groups...10% discount on 5 or more of one module ordered at one time to one address.

J Beam MBM48/70cm ANTENNA ..... ONLY *$75.75

*(ADD $5 UPS SHIPPING)



One of the few antennas that have enough bandwidth for ATV... 3 db down at 420 and 450. Covers simplex and Repeater frequencies with no sacrifice. No balun to buy.

- **15 dbd. 48 elements.**
- **6 foot boom length.**
- **Direct 50 ohm coax feed.**

*cod OK on J Beams
add $5 UPS shipping charges

mbm88/70 88 element *$105.50
pmh2-70 dual phasing harness ..... *$ 16.65
mf2-48 vert stacking frame ..... *$ 16.80

ALL SPECTRUM INTERNATIONAL PRODUCTS CAN BE ORDERED THRU P.C. ELECTRONICS

LOW LOSS COAX. 50 ohm Saxton 8285 foam RG8 type ..... 100 ft roll ... $41 ppd

Only 3.5 db/100' loss at 400 mhz. Tight 95% shield. Other lengths 45 cents/ft + $5 UPS.

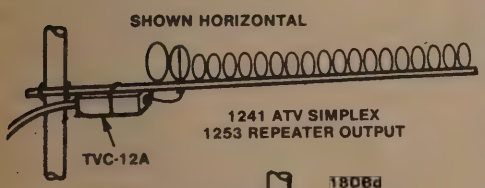
AEA 450 ISOPOLE OMNI GAIN ANTENNA ..... $65 delivered.

High efficiency decoupling cones puts the all the RF on the horizon where it counts. Great for local ATV round tables, or public service portable work, separate sound subcarrier transmitters, FM remote base and repeaters. Ready to connect to your coax N connector and 1¼" mast. Low wind loading and DC grounded for ruggedness.

1200 MHZ ATV SYSTEMS

Use 1278.75 mHz as a duplex atv freq. with others on 439 or 434 mHz by just adding a MMV1296 varactor tripler and 1296-LY loop yagi to your 10 watt transmitter on 426.25 mHz. As long as the 400 and 1200 mHz antennas are more than 5' apart no special filters are needed. To receive just add a 1296-LY loop yagi and the TVC-12a downconverter. Other uses are crossband repeaters to see your own video comming back, repeater links and remote bases, weather radar video, site security, etc.

TVC-12a 1215 to 1300 mHz DOWNCONVERTER .... $89 ppd



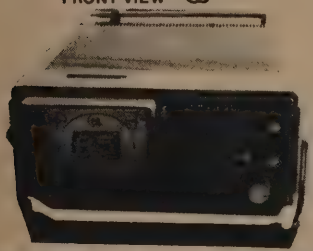
Sensitive NE 64535 preamp stage, remote varicap tuned, downconverts to TV channels 7 or 8. Mounts on 1296-LY antenna to save feedline losses. Requires simple 11 to 18 volt at 20 ma supply made from Radio Shack parts to tune thru IF coax line.

1296-LY LOOP YAGI ANTENNA ..... *$64.70 + UPS

18 dbd gain and full bandwidth on a 7 ft boom. With N connector.

MMV1296 VARACTOR TRIPLER ..... $113.45 ppd

Triples ATV, AM, or FM to the 1200 mHz band with 60% efficiency. 20 watts max drive, and no power supply required.



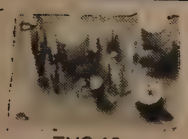
5" COLOR AC/DC PORTABLE TV/MONITOR $299ppd

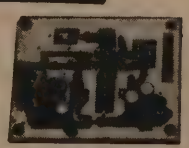
Liberty model 5012 has video and audio inputs and outputs. Use as a color video monitor, standard TV, VCR tuner, or repeater receiver. Operates on 117vac, external 12vdc, or internal D cell batteries (not supplied). 12 x 12 x 6"

ATV RF MODULATORS and TEST GENERATORS

Connect your camera video or audio gen to these mighty milliwatt transmitters and you are on the air for demos, ant tests, receiver alignment, or QRP DX!

TVG-1 tunes 400-480 mHz, req 9 to 12 vdc..... $15ppd.
TVG-12 tunes 1200-1300 mHz, req 9 to 12v ..... $15ppd.
TVG-23 setable 2.1 to 2.5 gHz req 11 to 18v ..... $20ppd.


TVG-12


TVG-23

TSQ-1 TV S-METER AND SQUELCH BOARD ..... $5ppd.

Add common or Radio Shack parts, tap into TVs video IF AGC line, break one speaker lead, and you can better align the antenna, give relative signal reports, and have no noise between contacts.

RTX-1

RTX-1 ATV REPEATER TRANSMITTER MODULE ..... $325 ppd

Contains sync equalized TXA5 exciter, FMA5 sound subcarrier, MHW710-2 10 watt power module, and DM-1 Detector/Monitor in a shielded diecast aluminum box.

*USED ON CANADIAN MT. EVEREST EXPEDITION. IF IT WORKED AT 23000 FT, SHOULDN'T IT BE ON YOUR HILLTOP ?

SEE pg. 80 of "EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT AMATEUR TELEVISION" book for complete repeater info. Adding special effects, mixing two meters, getting rid of desense and interferance from other transmitters at the same site, etc.

P. C. ELECTRONICS

SPECIALS AND NEW ITEMS

WHAT IS THE TOTAL COST FROM US TO GET ON ATV IF ALL U HAVE IS A TV SET????
Not much different than any other mode! WE CAN GET U ON FOR $695!
CHECK THESE DELIVERED PACKAGE DEALS:

TC—1

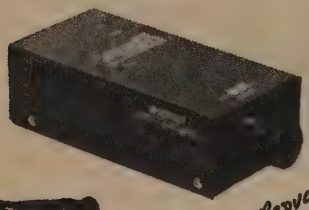
$399

TC-1 ATV TRANSMITTER CONVERTER plus the following:

1. HV-62 B&W camera, 100 ft Saxton 8285 coax, 48 el J Beam ant. Reg $713 value.....$695
2. GP-41 Hitachi Color camera, 100' 8285 coax, 48 el J Beam ant. Reg $969 value.....$940
3. 100' 8285 & 48 el J Beam. Reg $520.....$505
4. 48 el MBM48/70 J Beam ant. Reg $479.....$469
5. HITACHI HV-62 B&W camera. Reg $592.....$579
6. GP-41 Hitachi Color camera. Reg $848.....$828

*With any of the above 6 packages, order any of the TC-1 options listed at the regular price & receive the new ATV book by A5 Magazine free! Add Mirage D1010N amp & get free $20 setup!

- *10 Watts Output
- *Standard Frequencies Available
- *Broadcast Standard Sound
- *High-resolution & color video
- *Regulated AC Supply Built In
- *Tuneable Downconverter & Preamp



GP-41D PRICE REDUCED FOR CHRISTMAS

$199ppd

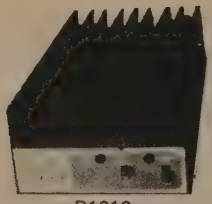
HITACHI HV-62U BLACK AND WHITE CAMERA .....~~$205ppd~~

High performance CCTV camera great for ATV or surveillance. 500 line resolution, 10,000:1 auto light compensation. C mount 16 mm F1.6 lens included. 117 vac at 7 watts. small 4 x 2. 7 x 8 inches.

HV-62SU externally syncable, 2:1 interlace version.....$299ppd
WIDE ANGLE LENS HF-9A 9mm F1.4 C-mount.....$75ppd
TELEFOTO LENS HF-35A 35mm F1.7 C-mount.....$75ppd
ZOOM LENS H5X14C 5:1 14-70mm F2.0 C-mount.....$204ppd

HITACHI GP-41D TRI-ELECTRODE PORTABLE COLOR CAMERA.....~~$490ppd~~ $449

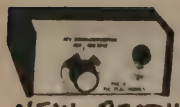
6:1 power zoom 14-84mm, auto iris, F1.6 lens with macro focus for close-ups. 1.5" electronic viewfinder. Boom microphone. Full range variable color temperature control. Superior color and low light sensitivity to 75 lux. 12vdc (6.7 watt load) to 117vac adaptor, AP-4 INCL... NC



D1010

D1010-NMIRAGE ALL MODE 100 WATT AMPLIFIER...$299ppd

420 to 450 mHz, FM, SSB, CW, and ATV. Typical 90 watts output with only 4 watts drive. Req. 13.8 vdc reg. at 20 amps. Size 12"x3"x5½". Specially modified by us for ATV. Full bandwidth for color and sound. Good linearity and sync when driven by our sync expanded TC-1s. UG-21 male type N cable connectors..... $5 ea.



NEW PRODUCT!

DCB DOWNCONVERTER CONTROL BOX....intro price.$59ppd
15 db gain MRF901 ch2-ch10 line amp. Supplies tuning adj. reg. 10 to 18 vdc at 150 ma thru coax to ant mounted conv. such as TVC12a & TVC2L.

F9FT TONNA 23 EL ANTENNA 1240-1300 mHz.....$49.50ppd
16.3 dbd. UG21 male "N" incl. 5' 10" boom.

ATV DEMO VIDEO TAPE ..... VHS format $25ppd
This tape is directed toward radio club meeting programs or groups contemplating getting on ATV. 21 minute running time, shows on the air contacts public service, equipment, voyager 2, etc. If it doesnt get them fired up for ATV nothing will!

All our manufactured modules can be serviced by us for $15 plus parts cost. TC-1s are $30 plus parts. Call or write for return authorization or repair assistance. Most items shipped in 3 days if payment by charge card or Postal Money order.

TERMS: Unless otherwise specified: Visa and Master Card orders by phone or mail $25 minimum. Orders under $25 add $2 shipping and handling. Over $25 we pay shipping if price is given as PPD (postage paid). No CODs or purchase orders accepted. All other checks up to 15 working days to clear. Our PPD prices are sent UPS brown or 1st class mail at our option within USA. Call for additional amount to send if UPS Blue, Express Mail or foreign Air Parcel Post is desired. Foreign orders must include check in U.S. dollars drawn on a U.S. bank. We cannot insure foreign delivery but will ship Air Parcel Post or your carrier at your risk. Valid ham call letters required by us for purchase of transmitting equipment for use in USA. Our address is for mail order only. We do not have a retail store for walk-in trade nor its cost to pass on to you.

CANADIAN ORDERS ADD THE HIGHER OF $5.00 OR 3% FOR SHIPPING

CALL 8am-6pm M-F

Channel 28

COLOR SSTV STANDARDS

Syd Horne VE3EGO
P.O. Box 893
Belleville, Ontario, Canada K82G6

SSTV video

A5

Evidently there has been some confusion existing among SSTV enthusiasts concerning the standards for color SSTV. I disagree with the notion that any one person or group determines what standards will be adopted for SSTV. This is quite simply just not the case.

The original inventor of a particular color SSTV transmission method must of necessity specify the system parameters which would permit others to take part in the experimental activity and control the system parameters for that system until such time that the parameters for that system have been accepted by a majority of users as a standard.

It has been also suggested that compatibility has been forgotten. I do not believe this to be true. The following discussion is an attempt to clarify the situation.

CURRENT COLOR SSTV EXPERIMENTS

The current method being used by amateurs to transmit color SSTV pictures is known as the Frame Sequential method. In this method each of red, green and blue frames are sent sequentially. The order in which these frames are transmitted is red, green and blue. This order was chosen because it is easy to remember RGB. The frames may be sent in any order as long as the receiving station(s) is aware of the order in which the frames are transmitted or alternatively, means must be provided to perform the frame selection function automatically upon receipt of the picture.

This frame sequential system is completely compatible with the existing SSTV standards and in fact, is the defacto standard for amateur SSTV at this time.

The quality of the color picture which is produced by the current frame sequential system is the standard by which other systems will be judged.

Anyone with amateur SSTV equipment can receive these transmissions. It will be recalled that the first transmissions were received on B/W equipment and retransmitted to the sender. It is a fact that both the red and green blue pictures contain only a relatively small percentage of the information for the complete color picture. The green frame, although not as detailed as an equivalent B/W picture is the most pleasing frame to view on a B/W monitor.

FUTURE IMPROVED COLOR SSTV

Amateur experimenters who are working on Line Sequential SSTV systems which will enable a color picture to be painted with all three colors on a line by line basis, have recognized the fact that the green picture is best suited for viewing on a B/W monitor. Accordingly a proposal has been made to transmit line sequential SSTV with the green line first followed by the red and lbue lines for each three line sequence. The order of the red and blue lines will be determined by the system considerations. This line sequential SSTV transmission when encoded with appropriate synchronising pulses will enable an amateur with existing B/W equipment to receive these transmissions. This is the basic reason for the GRB sequence. The precise details of the GRB transmission sequence however, has not, to my knowledge, been published at this time. (Article written before Robert Studios W0LMD article in November A5 issue-Editor) This is the basic reason for the GRB sequence. In any event the exact sequence is of transmission of each line is somewhat unimportant because the switching required to generate the sequence must be generated electronically. Therefore, once the best sequence is determined for a compatible B/W and color system it can be standardized. In most systems it is a relatively trivial adjustment to change the sequence in which the lines are transmitted.

Many amateurs are experimenting with line sequential color SSTV systems. I am aware of experiments that are being conducted with systems that require frame transmission times of 8.12 and 25 seconds. These systems, by their experimental nature are proposals at this time. Any particular system will not become a standard until the system parameters have been published in detail to enable others to duplicate the results. In addition, a consensus must be reached that the overall picture quality is acceptable. This will take some time. Frankly, I am encouraged that this serious experimentation is taking place. We are very fortunate to have gifted people among our ranks who have devoted much time and thought to the solution of some very complex problems.

THINGS DESIGNERS SHOULD KEEP IN MIND

There are several important parameters to be considered in a color SSTV system. The most important parameter is picture quality. There is a communications law which states that for a given amount of information the bandwidth multiplied by the transmission time is a constant. This means what if it takes 25 seconds to transmit a RGB frame sequential picture and it is required to transmit the same picture in say 8 seconds then, since the bandwidth is the same, it follows that the amount of information must be reduced in order to send that picture in one third of the transmission time. This will, no doubt, affect picture quality!. The main question is whether or not the resulting pictures, when produced using 8 or 12 second transmission times is subjectively acceptable to a large number of amateurs so as to encourage them to use the proposed standard. The jury is out on this question.

The transmission of color SSTV using relatively short frame times presents a tremendous challenge to the designers of newer systems. The designer must develop some clever approaches in this area. I also believe that if we cooperated to develop a new standard then the state of the art will be significantly advanced.

COMPATIBILITY IS A MUST!

The generally accepted meaning of compatibility is that all SSTV systems currently in use, will be capable of receiving every other SSTV transmission. Because of the large number of Robot 400 and other similar scan converters currently in use around the world it is mandatory that any new color SSTV standard must be compatible with existing standards. If we do not cooperate in this worthwhile endeavor then the SSTV community will get subdivided into smaller groups. This obviously is a backward step and must be avoided at all costs.

I will be interested in working with anyone in this endeavor.

Syd Horne VE3EGO

FROM THE PUBLISHERS OF A5 ATV MAGAZINE

EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT ATV* but were afraid to ask

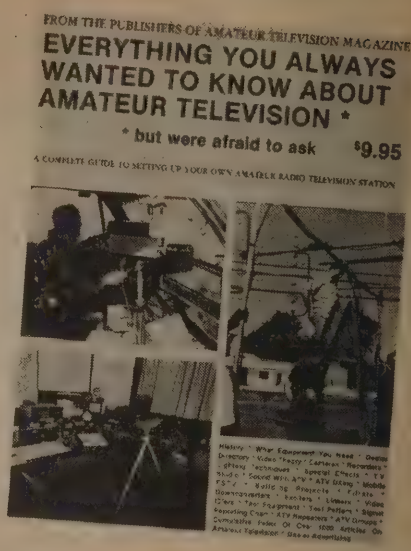
NEW! JUST RELEASED! The most complete, easy to read, Fast Scan Television book ever assembled! 112 pages of History of Commercial and Amateur TV to video theory, construction projects, cameras, video tape recorders, antennas, etc., with a full chapter devoted to ATV Repeaters including a 1982 USA FSTV Repeater/Activity Directory.
Only $9.95 plus $2.50 for postage/handling expenses. Club, group and dealer quantity discounts available.

by Mike Stone WB0QCD

OVER 600 SOLD IN JUST SIX MONTHS!
Limited Quantities Remain...

ORDER YOURS TODAY!

QCD Publications
Amateur Television Magazine
c/o Mike Stone WBOQCD
P.O. Box H
Lowden, Iowa 52255-0408


FROM THE PUBLISHERS OF AMATEUR TELEVISION MAGAZINE
EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT AMATEUR TELEVISION *
* but were afraid to ask
$9.95

"If you are active in Amateur Television now, or are thinking about getting involved in it, this reference manual provides you with all the information you'll ever need!" Tom O'Hara W6ORG

"Just in time for Christmas!"
(Leave this ad so the XYL will see it!)

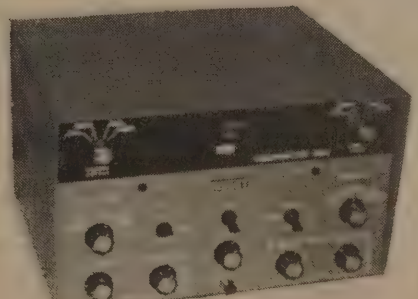
MODIFY YOUR ROBOT 400 FOR COLOR SSTV

(Factory Modification Service Now Available! Write for details)

GET ON COLOR SSTV INEXPENSIVELY WITH THE

COLORSCAN 403

ROBOT 400 CONVERSION KIT



"Why pay more for less?"

SYCEL COMMUNICATIONS, INC.
PO Box 893
Belleville, Ontario, Canada
K8N 2G6

- Uses B/W Camera interface
- Filter wheel for 22mm lens
- Standard color TV set displays full colors
- Includes memory circuit board, assembled & tested
- Prewired connector lead assembly
- Color encoder kit includes diecast aluminum box
- 115/230 V transformer, power supply assembly, switches
- Auto Servo-control for Color Filters
- Front and rear panel overlays
- Complete instructions

NOW AVAILABLE FOR SHIPPING!

Colorscan 403 complete kit $595.00

Colorscan 403 kit less color encoder $520.00

Colorscan 403 color encoder kit (partially assembled and alligned, less psu $100.00

NEW! We now carry professional quality color SSTV cassette tapes for field sequential color SSTV systems prepared by G3NOX under laboratory conditions. Each cassette contains many color SSTV pictures. 3 hardcopy photos also included. A real necessity for any color SSTV system **$50.00 ppd.** Syd. Horne VE3EGO

"It is just simply too expensive these days to subscribe to every Amateur publication. Let A5 ATV MAGAZINE be your clearing source for the latest information and articles concerning Amateur Radio Specialized Communication!"

PhotoCaster: SSTV for the APPLE II

COMMSOFT

Ken Rothmuller, WA6NFA
COMMSOFT, Inc.
665 Maybell Avenue
Palo Alto, CA 94306

PhotoCaster

IMAGE ENHANCEMENT

PhotoCaster (tm) is a new SSTV system for the APPLE II computer which is available from COMMSOFT.. It offers black and white as well as color SSTV capabilities. In last month's article the color features of the system were described. This month the image enhancement modes will be discussed.

Flexibility with Microcomputer Software

The inherent flexibility of a microcomputer-controlled SSTV system permits a number of new capabilities to be introduced to amateur slow scan television. Many of the new features could not have been implemented with a dedicated hardware system at a reasonable price. When a microcomputer (such as the APPLE II) is used, the additional capabilities require more development time, but no additional hardware. The additional memory space required by the new features can be shared with other functions which do not need to be loaded in the computer's memory at the same time.

The high resolution pictures which accompany this article illustrate some of the many transformations which can be performed by PhotoCaster's image enhancement functions. A new dimension can be added to amateur SSTV by employing these capabilities to improve reception on our crowded ham bands and to assist in making or modifying pictures before they are sent. Write for free information.

PhotoCaster is a trademark of COMMSOFT, Inc.

PhotoCaster Image Enhancement Examples

The pictures were printed on an Epson MX-80 printer with Graftrax.

COMMSOFT
665 Maybell Avenue
Palo Alto, California 94306
(415) 493-2184
Channel 31

EXPANSION OF FACSIMILE (FAX) IN THE 1980's

A5 "FAX" CONTRIBUTING EDITOR WB5TXA DISCUSSES THE USE OF COMPUTERS

A MORE MODERN APPROACH TO FAX OPERATION

This is an introductory article on a new concept in FAX picture reception . The traditional reception of FAX pictures has relied on used,handed down equipment. This mode perhaps more than any other,except RTTY has been slowed by the lack of equipment . Only the very technically able hobbiest could or would dare try to put a system together.

There are more computers and other computer like devices on RTTY now than there are RTTY devices . This desparity will continue to grow with time. The only reason I am mentioning this is that I feel the same thing will happen with FAX.

The only way various makes of RTTY and computers can talk to each other is through a standard signal format ie. ASCII, BAUDOT . The same will be true for FAX/COMPUTER compatibility. The international FAX standards will allow all devices to send and recive pictures regardless of computer type, or FAX machine. There are unfortunately only a few computers that are easily adapted to this use. More about that later.

Its unfortunate that more people dont understand the advantages that FAX has in the long distance,narrow bandwith mode of transmission. In a way it might be considered the CW mode for picture transmission. Comparing FAX bandwidth to regular TV bandwidth is similar to a CW/Phone comparison. There in lies its advantages / disadvantages.

In comparing the various picture transmission modes ,there is a direct trade off in time of transmission and bandwidth. We are stuck with bandwidth limitations, so we only have the time factor that we can change to our advantage. Fax makes the most of this by taking more time to send more information in the picture. That is the reason the Press,Weather Satilites,and other users use this mode instead of SSTV or regular TV. Each mode has a unique time and place to be used.

USING MICROPROCESSORS FOR FAX OPERATION

Since to my knowledge the printing of FAX on a home type computer is not too common, let me explain in general how this is done. Much like RTTY this requires certain unique hardware items. There are at this time only certain combinations of computers/printers/software that can accomplish this.

SSTV MODE EXPANDS FAX CAPABILITIES

The pioneer work done by K6AEP on SSTV opened the door to this concept some time ago. Only recently has common equipment been around to make use of it. Lets talk about printers for a moment. They all have there place and use. However, the idea with picture printing is to get the most dots in a given area at a price most people can afford. After researching this a bit one printer keeps popping up,and that is the MX-80. These seem to be owned my more people and have all the necessary picture printing qualitiys. Although I own another type graphic printer it wasn't up to this type service. The only reason I'm mentioning this, is the fact that this operation is very software intensive. The software for this system simply will not work with other type printers.

The computer I used is the #TRS-80C Color Computer. For some of you that have been into RTTY and SSTV you probably already have a lot of the required hardware for FAX operation.

FACSIMILE MODE INTERFACE UNDER DEVELOPMENT FOR TRS-80C

The other remaining piece of hardware is not an off the shelf item quite as yet.(we're working on it). This is the interface necessary for fax operation on the computer. Much like an RTTY or CW interface it handles the things unique to FAX reception.

SIGNAL "SYNCING" A MUST!

One of the differences between FAX and the other picture modes is the method of line sync. Unlike the other modes, with FAX if you lose your signal your picture doesnt lose sync. The interface must provide the precision line rate sync pulses. This makes it necessary to phase your pulses with those of the sending station before the picture begins. A period of phasing is always provided before the video begins . The software and interface takes care of this chore when you start the reception. It's for these reasons that software alone can't do the entire job.

SHORTWAVE COMMERCIAL MONITORING

The modulation used on FAX varies with the frequency and service its used with. I have copied the NOAA GOES Weather Satellites on 1691 MHZ, and Polar orbit satellites on 137.5/137.62 MHZ. using AM. These operate on 240/120 lines per minute. This is a facinating hobby all by its self! Then there are the news paper stations that send all of the pictures you see in papers all over the world. This has to be the most interesting SWL'ing you can perform on a HF receiver. You will receive everything from headline pictures to the weather map that you are so used to seeing in the paper every day. These are usually sent out as a negative using FM audio modulation the same as SSTV. The computer program written to view and print these pictures has to remove the mirror image and reverse the gray scale.

WB5TXA FAX CONTINUED. . .

COLOR FAX IN THE NEAR FUTURE?

The only pictures I have not copied with the color computer (as rediculious as it sounds) is color press photos. I'll probably leave that to the next innovator.

The NSS station on 8.080-16.410 Mhz. Provides all the Wx maps and pictures you would probably ever need. During the development of this system I have copied some press stations that are on the air for hours at a time sending one picture after another between 15 and 20 Mhz. There is no shortage of signals once you learn to recognize a FAX signal.

PICTURE BLOWUP ENHANCEMENT POSSIBLE

All these different types of FAX do require different programs for the computer. This is dictated by the fixed hardware and time constraints. The computer doesnt have time to do things at the high line rates that can be done at the low rates .

To take full advantage of the equipment requires several diffrent programs.

One of the advantages of a computer on this mode is the strange way blow ups of the picture can be made and actually gain detail over the 1:1 picture. For instance the face of a person on a press photo can be enlarged and have 16 times the size and 4 times the detail present in a 1:1 picture. This is a strange phonomenon if your used to blowing up 35mm camera photos where just the opposite effect takes place with regard to detail . This can be explained though and is due to the adjustments required to maintain the correct aspect ratio in the 1:1 picture.

A4/F4 FAX AMATEUR MODE IS A REAL "SLEEPER"

This article will hopefully generate some interest in a very interesting but neglected mode of picture exchange. There are still many loose ends as creation of transmission software and hardware is being developed. As far as picture quality is concerned , look at the adds for printers and pick out the best photo you see coming out of the printer. This is the type photo you should be able to receive with this type system. If they can get it on the printer for their adds we can get it on there from a FAX signal! This should remain the state of the art until a manufacturer comes up with a higher density printer (more than 960 dots/line) that we can all afford. (I re-ink my ribbons too!)

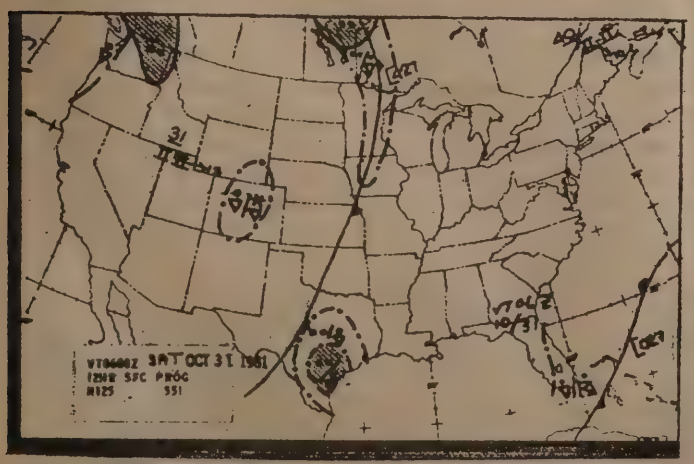
THE FUTURE OF AMATEUR FAX IN U.S.A. IS COMPUTERS!

Hopefully I have presented a new and exciting mode of operation to those of you who like other modes of operation . This being an introductory article has not delved too deeply into all the details. Perhaps in the near future we can explore in more detail the in and outs of COMPUTER / FAX operations.

Gerald W. Gore WB5TXA
7023 Castleridge
San Antonio Texas 78227

"LET'S HEAR FROM YOU FAX ENTHUSIASTS! WRITE GERALD A LETTER AND SEND COPIES OF YOUR PHOTOS TO A5. . ."

"FAX-BETTER PICTURES VIA HIGHER RESOLUTION"



OFF-THE-AIR FAX PHOTO USING ACTUAL CONVERTED FACSIMILE EQUIPMENT.

FAX Photo VIA TRS-80C/MX-80 Printer

VOLKER WRAASE DL2RZ
AM ZUSCHLAG 19 · D—2067 REINFELD

VOLKER WRAASE

Elektronik

WORLD'S FIRST AMATEUR RADIO DIGITAL—VIDEO FAX CONVERTER ANNOUNCED

LOST THE CHALLENGE IN SSTV OPERATION? TRY THIS NEWLY AVAILABLE MODE ON FOR SIZE!

Facsimile (A4/F4) Amateur operation has been around for many years. FCC regulations limited the printed picture mode to 6 Meters and above on the VHF bands which kept DX operations except during "band openings" pretty much on a local level. Very active FAX Clubs were on-the-air in the 1950's and 1960's swapping "high resolution" photos long before the days of Slow Scan Television. With the popularity of SSTV growing by leaps and bounds in the late 1960's and early 1970's, FAX experimentation just about died. Only a few hearty souls (mostly weather satellite buffs) braved the smell of burning paper and continued to operate Amateur Radio's least operated specialized communication mode. But, now things are changing. High prices of multi-memoried SSTV converters and conversions have all but halted growth within the SSTV ranks. It is estimated that a 40% decline of active SSTV stations that once called CQ Video on the HF bands are no longer interested in operating. This can be attributed to many things including high prices for gear, depersonalization of material due to keyboard generated devices, self-interest "profiteering", a reduction in working cooperation between fellow operators, more complex operation techniques and slower clock rates, sun-spot cycles, etc. With the more common "longer" frame transmission rates and drive for even higher resolution pictures, the movement toward FACSIMILE modes of communications may once again make a dramatic turn in Amateur Radio. The big "boost" for Amateur "FAX" operation came from the A5 MAGAZINE/Henry Ruh (KB9FO) FCC Docket 80-252 which gave all SSTV'ers (General Class and above) permission for expansion into all authorized HF band operations and with it the FCC tied a Robert Roehrig (K9EUI) proposal (RM-3239) for legalization of A4/F4 signals also on all HF bands where SSTV is permitted. The big "hurdle" hampering FAX growth today is the availability of equipment. Surplus Facsimile equipment is around and easy to convert (K9EUI June 82 A5 article) with a complete Western Union Deskfax conversion article scheduled for our January 1983 issue. The work currently being done with microprocessors by Clay Abrams K6AEP, Gerald Gore WB5TXA and Ken Rothmuller WA6NFA are all heading for printed and video FAX capability by early 1983. Commsoft Corporation is perfecting a method for "Color SSTV and FAX" printouts using inexpensive dot matrix printers. A5 has seen some of their first examples and they look fantastic! Dayton 1983 will surely display this new capability.

NEW GERMAN FAX UNIT IS FIRST OF ITS' KIND

While sitting with Volker Wraase DL2RZ at the Friday night SSTV forum hosted by Bob Suding and Don Miller, Volker slipped me a new sales brochure on a new FAX video converter similar to the great 2 and 3 memory model SSTV products already successfully in the marketplace both in the U.S. and Europe. The new FAX converter would work any mode formats popular presently with adjustable sync speeds. 256 pixel resolution was standard on the unit with other optional features. A prototype unit was hand carried over to Dayton and was on display at the KW Control System booth, but few including KW noticed it. For further information, write Volker directly and hopefully with our early 1983 issues we will be able to run a review on the unit. The price appears to be around $1295 far below the complete SSTV system counterpart. Surely, FAX IS BACK!

CQ ham radio

Here & There

FAX

JA2OL 住奥久隆

《写真1》 W6PHDのFAX送信画

JAFA

1ST USA TO JA FAX DX? (Unconfirmed)

Jerome Grokowsky, WA9HCZ なお，OMはJAとの2way交信を望んでおり，7170，14250kHzで上，日曜の1230～2200Zにスケジュールを組みたいそうです．ご希望の方は，下記あてご連絡願います．

◆FAX局紹介◆

JR6DJ 伊佐友一

HEY ROBOT 400 OWNERS!!

We have the KD6HF Zoom Mod and 25.5 second single frame color mod kits! All wired and tested with components including switch and 15 pin edge connector. Only $22.95 EACH! (1.5 x 2.5'' board)

WRITE:

FRED R. SHARP W8ASF
3161 Huntington Rd.,
Shaker Heights, OH 44120

HIGH RESOLUTION SLOW SCAN TV

Rivals Commercial TV Quality

New generation amateur-standard scan converter sends and receives sharp pictures with up to 16 times better resolution than earlier units. Interfaces easily to home TV camera and CCTV monitor. VIDEOSCAN 1000 ™ employs a custom microprocessor and other LSI ICs that provide advanced capabilities such as multiple picture storage, 64 levels of gray, split screen, call sign option, on-screen cursor and much more. Call or write for brochures on VIDEOSCAN and *"Getting Started In SSTV"*. This unit is so advanced, it costs you less, especially at these special introductory prices —

VIDEOSCAN 1000 Kit (For advanced builders)	VS1000-K	$595.00
VIDEOSCAN 1000 Wired & Tested	VS1000-F	$795.00
CALL SIGN OPTION (Specify up to six letters)	VSC	$ 50.00

Send check or money order. Use your VISA or MasterCard. Add $6.00 for shipping and handling for continental U.S. Wisconsin residents add 5% Wisconsin State Sales Tax.

Microcraft Corporation
P. O. Box 513Q, Thiensville, Wisconsin 53092
Telephone: (414) 241-8144

COMPUTER SHOPPER
P. O. Box F•Titusville, Florida 32780

ONLY $10.00 PER YEAR!

BUY! SELL! TRADE!
COMPUTER & HAM EQUIPMENT
COMPUTER TRADER

SUBSCRIPTION
$10.00
Low Ad Rates — Mailed Monthly

COMPUTER TRADER
Chet Lambert, W4WDR
1704 Sam Drive • Birmingham, AL 35235
(205) 854-0271

THE WESTLINK REPORT
THE AMATEUR RADIO NEWSLETTER
11119 Allegheny St., Sun Valley, CA 91352

CHECK YOUR RENEWEL DATE
"DON'T MISS ANY A5 ISSUES!"

MIRROR IN-THE-LID, and other pre-1946 television sets, picture tubes, parts, magazines wanted for substantial cash. Especially interested in any RCA "TRK", G.E. "HM", or Westinghouse "WRT" series set. Arnold Chase, 9 Rushleigh Road, West Hartford, CT 06117. (203) 521-5280.

IBM NEWStrack Volume 3 Number 6 August/September 1982

San Jose author featured on Japanese television

Clay Abrams, a staff engineer in the test laboratory, recently appeared on Tokyo TV to discuss his Slow Scan TV system. The program will also be shown on international television.

Abrams has been experimenting with communications gadgets since 1955. He has assembled a unique combination of electronic and radio equipment, with a microprocessor in command. He transmits both character-generated and video messages over his Slow Scan TV system to all corners of the world.

"The Third Wave," a Japanese magazine that sponsored the TV program, predicted that in the near future people will be able to communicate with each other through Slow Scan TV. According to the magazine, amateur radio operators in the U.S. and Japan are already transmitting a form of digital data and picture messages at low cost. The magazine reports that plans are underway to launch a special satellite for amateur radio operators that will substantially improve the quality of transmission.

Abrams has had several magazine articles on Slow Scan TV transmission published. In addition, he has contributed a full chapter on that subject to "Microprocessor Applications Handbook," published by McGraw Hill. He is also a contributing editor to Amateur Television Magazine and the 68 Micro Journal.

Clay Abrams reviews product test results in the test laboratory.

ANNOUNCEMENT Oct. 5, 1982
AFSK-CW 800A RTTY-CW A COMPLETE SYSTEM

The AFSK-CW 800A is a integrated modulator/demodulator with state of the art features using the newest active filters available. The 8 pole mark and space filters track any desired mark and space frequency, and can also be tuned with constant Q. The system is useable with any computer (with appropriate software) which has either RS232 or TTL I/O, or it can be used with current loop TTY machines.

MODULATOR FEATURES:

* Programable, any 4 mark and any 4 space frequencies
* Crystal controlled accuracy of 0.5 percent or better
* 1 KHz CW keying tone or reed relay keying
* RS232, TTL, or opto-isolated current loop input.
* Data invert jumper for compatibility
* Tunable space oscillator to match odd shifts
* Hand key input for CW ID
* Simple D/A converter provides true sine wave output
* Phase coherent, frequencies change at zero crossing
* Convenient microphone/RTTY-CW switching

DEMODULATOR FEATURES

* Input bandpass filter
* Separate tracking mark and space filters follow the modulator programming
* Space filter follows tunable space oscillator
* Receive all popular shifts and speeds up to 600 baud ASCII.
* Meter, LED's, and scope outputs for tuning aids
* Input level adjustable for full limiting or linear operation
* 8 pole filter bypass switch
* Normal/reverse data switch
* Auto start or free run switch
* XR2211 PLL demodulator for wide dynamic range
* Simple alignment procedure
* Opto-isolated current loop output.

COMMON FEATURES

* All power supplies on the board (external supply needed for TTY machine loop)
* 6" by 8.5" epoxy board with component legend
* Double sided board with over 1200 plated thru holes
* All parts easy to obtain

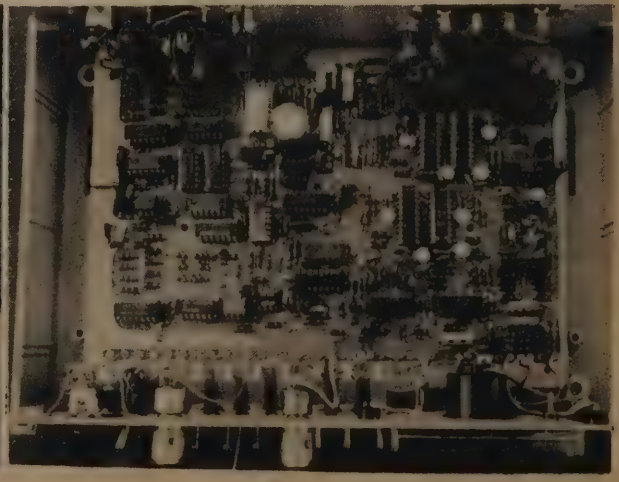
The prototype board has been assembled and tested on the air, and testing with computer programs at 600 baud has been very successful. The PC board only, with assembly instructions and parts ordering information will be available some time around the end of October or early November. Final PC board changes and documentation are now in progress. Orders may be placed now; money orders, checks, or cash only please. (no COD's or bank cards) Send cash by registered mail only. Checks won't be cashed until boards are ready for shipping. The board is $45.00. Add $1.50 for postage and $1.00 for insurance. California residents add 6.5 percent state and local tax. ($2.93)

Order from:

Dynamic Specialties
PO Box 20903
San Jose, CA 95160

All IC's cost a total of about $49.00 when purchased from a popular mail order firm. Of course, many other parts are needed. If demand is great enough, silk screened and drilled panels will be made available in the future, and possibly completely assembled units. No prices are available for these services at this time.

PHOTOGRAPHS OF THE PROTOTYPE SYSTEM



DYNAMIC SPECIALTIES (K6KLO)

****** SSTV INTERFACE PC BOARDS ******
FOR TRS80C AND CLAY ABRAMS SOFTWARE

* Modern circuits with proven technique
* 5 pole audio and 9 pole video filters
* Meter circuit for accurate tuning
* Power supply on the board
* 3 PC boards eliminate most wiring
* Source switching for external signals
* Available parts- order form provided
* RTTY/CW boards SASE for details

3 boards only $39.00
shipping, $1.50 1st class. $1.00 insurance
Calif. add 6.5% taxes

DYNAMIC SPECIALTIES
PO Box 20903
San Jose, CA 95160

No COD's or Bank Cards Please

MICROWAVE ANTENNAS & KITS

- MICROWAVE DOWNCONVERTERS
- PARABOLIC ANTENNAS
- MICROWAVE PRE-AMPS
- HEAVY DUTY TRIPODS
- MICROWAVE PARTS & COMPONENTS

Your source of supplies for the fastest growing field of communications. Here is a low cost entry into the fascinating area of microwave technology. We offer a complete line of antennas, receivers, pre-amps, power supplies, etc..... Call or write for details.

DATA SERVICE CO.
3110 Evelyn Street
Roseville, MN 55113
612-636-9469

"SEND YOUR FSTV INFORMATION NEWS, ARTICLES AND PHOTOS TO US!"

NEW ELECTRONIC PARTS

Brand name, first line components. Stocked in depth. 24 hour delivery. Low prices and money back guarantee on all products we carry.
STAMP BRINGS CATALOG

Daytapro Electronics, Inc.
3029 N WILSHIRE LN. ARLINGTON HTS., ILL 60004
PHONE 312-870-0555

IT PAYS TO ADVERTISE IN A5!
Ask For Our Ad Rates And Specifications

sample issue only $2.50 PPD
OUR 15TH YEAR!

AMATEUR TELEVISION MAGAZINE

"FOR THE SPECIALIZED COMMUNICATION RADIO AMATEUR"

	Surface U.S./Canada Mexico	Surface All Foreign	Airmail Central S. America	Airmail All Other Foreign
½ year	$ 10.00	$ 13.00	$ 20.00	$ 23.00
1 year	$ 20.00	$ 26.00	$ 40.00	$ 46.00
2 year	$ 38.00	$ 50.00	$ 78.00	$ 90.00
3 year	$ 56.00	$ 74.00	$116.00	$134.00

ATV-SSTV-FAX-RTTY-Satellites-EME
Microwave and Computers
Published 12 times per year by Mike Stone WB0QCD
P.O. Box H, Lowden, Iowa 52255 0408

MasterCard VISA

"WIN THE RACE AGAINST HIGH PRICES!" BUILD YOUR OWN QUALITY PRINTED CIRCUIT BOARDS FOR THE TRS-80C COLOR COMPUTER (K6AEP) RTTY-CLU-SSTV INTERFACES. THE NEW HIGHER RESOLUTION AND EXPANDED COLOR FRAME RECEIVE SSTV PROGRAMS WILL STILL REQUIRE THESE BASIC BOARDS. PRICES INCLUDE BOARDS, COMPLETE ASSEMBLY DOCUMENTATION AND PARTS LIST. YOUR ORDER WILL BE SHIPPED BY 1ST CLASS MAIL (ADD $1.00). IOWA RESIDENTS ADD 3% SALES TAX.

W-1 CW MORSE SEND/RCV	$5.00
W-2 RTTY TRANSMIT MODULATOR	$3.00
W-3 SSTV TRANSMIT MODULATOR	$3.00
W-4 SSTV XMT AND VIDEOMIX	$5.00
W-5 SSTV RECEIVE/DISPLAY	$7.50
W-6 FLESHER RS-232/TU-170	$2.50
W-7 SERIAL/PARALLEL EPSON MX80	$6.00
W-8 WB0ZJP ATV RECEIVER PREAMP	$3.00

For K6AEP-TRS80C Software
(Parts not included)

Bob Wilson WBØRTM
205 Elm Street
Van Horne, Iowa 52346

FAST AND DEPENDABLE MAIL – ORDER!

RAM – EPROM – TTL – LSTTL – MP SUPPORT
TRANSISTORS – DIODES – ZENERS – REGULATORS
RESISTORS – LINEAR – CAPS – POTS – CONNECTORS
CHASSIS – IC SOCKETS – FUSES – ANTENNAS – CALL-BOOKS – HANDBOOKS – KEYS – KEYERS – KITS

NO MINIMUM ORDER
SUPER–FAST SERVICE
FLAT–RATE SHIPPING

FREE CATALOG

THE PARTSTORE
Dept. 230
999 - 44th St.
Marion, IA 52302

PHONE
(319) 373-1803
(319) 849-2000

PARTSTORE
THE PARTSTORE

THE PARTSTORE

"We stock many of the parts and components for projects featured in A5 Magazine" Check with us on availability!"

RTTY REFERENCE

Amateur Radio RTTY Frequencies in the HF Band

80 Meters	3600–3650 KHz
40 Meters	7075–7100 KHz
20 Meters	14075–14110 KHz
15 Meters	21075–21100 KHz
10 Meters	28075–28100 KHz

Regardless of the band in use, Amateur RTTY is normally transmitted with the space tone being the lower frequency on the air. This requires that the transmitter be set for lower sideband with standard U.S. high tone RTTY equipment.

Some Commercial HF RTTY Frequencies of Interest

8023 KHz	AFP, Paris	425 shift, 50 baud
8105 KHz	Miami WX	850 shift, 74 baud
12223 KHz	VOA, Tangier	425 shift, 74 baud
14638 KHz	USIA, New York	425 shift, 74 baud
14974 KHz	AP, London	425 shift, 50 baud
16440 KHz	Miami WX	850 shift, 74 baud

More complete listings of press service frequencies may be purchased from:
Universal Electronics
1280 Aida Drive
Reynoldsburg, OH 43068
Attn: Thomas Harrington

Amateur RTTY Operations of Special Interest

The ARRL broadcasts bulletins from W1AW by RTTY on 7095 and 14095 KHz. The bulletins are first transmitted in Baudot code at 45 baud, 170 Hz shift. Immediately after the Baudot transmission, the same bulletin is transmitted in ASCII code at 110 baud, 170 Hz shift. The bulletins are transmitted by schedule as announced in *QST* magazine.

Message storage (MSO) nets are actively operating on 80, 40 and 20 meter frequencies. These nets provide a method of storing messages from one station to another for later retrieval or relay. Quite often general information for any interested operators is stored in these "mailboxes."

RTTY DX operations can be found in the 20-meter band just about any time that band conditions allow.

Special Considerations When Operating RTTY

We at HAL highly recommed the use of sideband transmission of RTTY signals, with the transceiver in lower sideband position (except of the Drake TR-7, where the RTTY position is used). The operator should remember to keep the mic gain down low enough to prevent overheating the final transmit stage of the transceiver.

Current FCC regulations require that amateur radio transmissions on RTTY be either in ASCII or Baudot code with the following restrictions concerning data rate:

Frequency Range	Maximum data rate
3.500 to 21.250 MHz	300 baud
28.0 to 225 MHz	1200 baud
420 MHz up	19600 baud

Most Amateur RTTY operations are still carried on at 45 baud (60 words per minute) and 170 Hz shift in Baudot code. On the HF bands, the susceptibility to errors caused by noise increases with the data rate.

The FCC still requires that U.S. Amateur Radio stations provide identification in International Morse code. Identification requirements for RTTY operation are the same as those for any other mode of operation.

The ASCII Data Code

	7	0	0	0	0	1	1	1	1
	6	0	0	1	1	0	0	1	1
	5	0	1	0	1	0	1	0	1
4 3 2 1									
0 0 0 0		NUL	DLE	SPC	ø	@	P	`	p
0 0 0 1		SOH	DC1	!	1	A	Q	a	q
0 0 1 0		STX	DC2	"	2	B	R	b	r
0 0 1 1		ETX	DC3	#	3	C	S	c	s
0 1 0 0		EOT	DC4	$	4	D	T	d	t
0 1 0 1		ENQ	NAK	%	5	E	U	e	u
0 1 1 0		ACK	SYN	&	6	F	V	f	v
0 1 1 1		BEL	ETB	'	7	G	W	g	w
1 0 0 0		BS	CAN	(	8	H	X	h	x
1 0 0 1		HT	EM	)	9	I	Y	i	y
1 0 1 0		LF	SUB	*	:	J	Z	j	z
1 0 1 1		VT	ESC	+	;	K	[	k	{
1 1 0 0		FF	FS	,	<	L	\	l	|
1 1 0 1		CR	GS	-	=	M	]	m	}
1 1 1 0		SO	RS	.	>	N	^	n	~
1 1 1 1		SI	US	/	?	O	_	o	DEL

ENQ = acknowledge
BEL = signal bell
BS = backspace (←)
CAN = cancel
CR = carriage return
DC1 = device control 1
DC2 = device control 2
DC3 = device control 3
DC4 = device control 4
DEL = (delete)
DLE = data link escape
ENQ = enquiry (WRU)
EM = end of medium
EOT = end of trans.
ESC = escape
ETB = end of block
ETX = end of text
FF = form feed (home)
FS = file separator
GS = group separator
HT = horizontal tab (→)
LF = line feed (↓)
NAK = not acknowledge
NUL = null
RS = record separator
SI = shift in
SO = shift out
SOH = start of heading
SPC = space
STX = start of text
SUB = substitute
SYN = synchronous idle
US = unit separator
VT = vertical tab (↑)

The Baudot Data Code

Bit Number 5 4 3 2 1	Letters	U.S. Figures	CCITT#2 Figures
0 0 0 0 0	BLANK	BLANK	BLANK
0 0 0 0 1	E	3	3
0 0 0 1 0	LF	LF	LF
0 0 0 1 1	A	-	-
0 0 1 0 0	SPACE	SPACE	SPACE
0 0 1 0 1	S	BELL	'
0 0 1 1 0	I	8	8
0 0 1 1 1	U	7	7
0 1 0 0 0	CR	CR	CR
0 1 0 0 1	D	$	WRU
0 1 0 1 0	R	4	4
0 1 0 1 1	J	'	BELL
0 1 1 0 0	N	,	,
0 1 1 0 1	F	!	!
0 1 1 1 0	C	:	:
0 1 1 1 1	K	(	(
1 0 0 0 0	T	5	5
1 0 0 0 1	Z	"	+
1 0 0 1 0	L	)	)
1 0 0 1 1	W	2	2
1 0 1 0 0	H	#	£
1 0 1 0 1	Y	6	6
1 0 1 1 0	P	0	0
1 0 1 1 1	Q	1	1
1 1 0 0 0	O	9	9
1 1 0 0 1	B	?	?
1 1 0 1 0	G	&	&
1 1 0 1 1	FIGS	FIGS	FIGS
1 1 1 0 0	M	.	.
1 1 1 0 1	X	/	/
1 1 1 1 0	V	;	=
1 1 1 1 1	LTRS	LTRS	LTRS

Note: FIGS-H (10100) may also be used for MOTOR STOP function.

Note: "I" = Mark = Hole in punched tape

"I" = Mark = Hole in punched tape

QCD Publications

A5

INTERNATIONAL

AMATEUR TELEVISION MAGAZINE

A5 AMATEUR TELEVISION MAGAZINE is published 12 times per year by Mike Stone WBOQCD, Lowden, Iowa and is printed and distributed by bulk-mail from Davenport, IA. 2nd Class postage paid, USPS Publication #944-960 ISSN #0279-4772. 3rd Class permit #7 paid at Lowden, IA. We reserve all rights. Blanket permission is notification to Editor and crediting A5 ATV MAGAZINE as the source used. Copies of the reprinted articles are to be mailed within 10 days of publish date to A5 ATV MAGAZINE. A5 ATV MAGAZINE, ATV IN A NUTSHELL and EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT ATV * BUT WERE AFRAID TO ASK publication are permanently recorded on microfilm and indexed at the U.S. Library of Congress, Washington, D.C. A5 ATV MAGAZINE is devoted and dedicated to Amateur Television and other modes of Amateur Specialized Communications. A5 ATV MAGAZINE is an INTERNATIONAL publication with subscribers from all parts of the world. Address all inquires and information to: A5 ATV MAGAZINE, PO BOX H, LOWDEN, IOWA 52255-0408.

A5 BACK ISSUE COPY SERVICE

Out of stock-back issues and articles available; Article Master-list $1.00. Complete back-issues (copies); Vol. 1-8 $1.50 each, Vol. 9-11 $2.00 each, Vol. 12 to present $2.50 each. Specialty packages (collection best articles) FSTV-MSTV-SSTV-FAX-COMPUTERS-RTTY-ROBOT 400 MODS $3.00 each. All postpaid with return envelopes furnished. Allow two weeks for delivery.WBOESF Ralph Wilson, 4011 Clearview Drive, Cedar Falls, Iowa 50613. (Foreigners send IRC's for return mailing via Air-Mail.)

A5 FOREIGN REPRESENTATIVES

(These people may be contacted directly for helpful information).

EUROPE-Joachim Breucha DJ4GL, Am Moosbuegl 9, 8432 Beilngries, West Germany, Andrew Emmerson G8PTH, 4 Mount Pleasant, Blean Common, Canterbury, England. AFRICA-Gerald Klatzko ZS6BTD, PO Box 9665, Johannesburg, South Africa 2000. SOUTH AMERICA-"Filepe Rojas HK3DJV, PO Box 52448, Bogota, Columbia. OCEANIA-Nelson Dyett ZL2FR, 71 Coutts Street, Wellington, New Zealand E3. ASIA-Takao Yabana JAOBZC, 4-29 Habaue, Matsumoto, Japan 390. CANADA-George Davis VE3BWW, PO Box 1383, Niagara on-the-Lake, Ontario LOS1JO. Bert Farmer Sr. VE6PW, 1155 Reader Crescent NE, Calgary, Alberta, Canada T2E5J8. Christiane Michel F5SM, %SM Electronic, 20 bis, Avenue des Clairions, Auxerre, France F. 89000

A5 RETAIL DEALER OUTLETS

A5 ATV Magazine may be purchased from: Ham Radio Outlet, 2811 Telegraph Avenue, Oakland, CA 94609, Henry Radio, 11240 W. Olympic Blvd., Los Angeles, CA 90064, Robot Research, 7591 West Convoy Court, San Diego, CA 92111, Derrick Electronics, 714 West Kenosha, Broken Arrow, OK 74012, Amateur Radio Equipment Co., 1203 East Douglas, Wichita, KS 62711, ATV Research, 1300 N. Broadway, Dakota City, NB 68731, Spectronics, 1009 Garfield, Oak Park, IL 60304, Amateur Electronics Supply, 4828 West Fond du Lack Avenue, Milwaukee, WI 43216, Silvernail Electronics, 14061 111th Terrace North, Largo, FL 33540, Ray's Amateur Radio, 1590 US Highway 19 South, Clearwater, FL 33516, Universal Amateur Radio Inc, 1280 Aida Drive, Reynoldsburg, OH 43068, Village Green Bookstore, 766 Monroe Avenue, Rochester, NY 14607, Ham Radio World Inc. Oneida County Airport-Terminal Bldg, Oriskany, NY 13424, Science Workshop, PO Box 393, Bethpage, NY 11714, PC Electronics, 2522 Paxson, Arcadia, CA 91006, The Parts Store, 999 - 44th St., Marion, IA 52302 and Prospect News, 2103 N. Prospect Ave., Milwaukee, WI 53202. A5 Retail Dealer, Birch Hill Sales P.O. Box 234 Peterborough, NH 03458

A5 ADVISORY/TECHNICAL REVIEW/CONTRIBUTING EDITOR STAFF

FSTV Ron Adamson WA9YJZ, 3623 Grandview Drive, Bloomington, IN 47401; John Beanland G4BVU, P.O. Box 1084, Concord, MA 01742; Tom O'hara W6ORG, 2522 S. Paxson, Arcadia, CA 91006; Henry Ruh KB9FO, 9391 West State Hiway 46, Elletsville, IN 47429; Mike Silvernail WB4BNJ, 14061-111 Terrace North, Largo, FL 33540; Roland Soucie N6WQ, 3104 Pierce Avenue, Costa Mesa, CA 92627

MSTV Dr. Don Miller W9NTP, P.O. Box 95, Waldron, IN 46182.

SSTV Clay Abrams K6AEP, 1758 Comstock Lane, San Jose, CA 95129; Tom Hibben KB9MC, P.O. Box 188, Desoto, WI 54624; Syd Horne VE3EGO P.O. BOX 893, Belleville, Ontario Canada K8N2G6; Dr. Don Miller W9NTP, P.O. Box 95, Waldron, IN 46182; Jeremy Royale G3NOX, Keeper's Cottage, Duddenhoe End, Saffron, Walden, Essex, England; George Steber WB9LVI, P.O. Box 513, Thiensville, WI 53092; Robert Suding WØLMD, 1161 Reston Avenue, Herndon, VA 22070.

FAX Robert Roehrig K9EUI, 314 S. Harrison, Batavia, IL 60510; Gerald Gore WB5TXA, 7023 Castleridge, San Antonio, TX 78227.

TVRO Gerard Wilson WA6RDA, 4597 Warm Springs Road, Glen Ellen, CA 95442; Frank Wolczak WAØIWF, 3120 U-Street, Omaha, NE 68107.

RTTY Joe Elliott KØWVN, P.O. Box 976, Topeka, KS 66601; Niel Petlock K9WRL, 3029 North Wilshire Lane, Arlington Heights, IL 60004.

432 SSB/EME Ed Fitch WØOHO, 1628 Northern Heights Drive, Rochester, MN 55901; Ken Kucera KAØY, R.R. #2, Riverside, IA 52327.

COMMERCIAL TV Ray Kassis, WA4OHK (Cable SAT General), 1150 West King Street, Cocoa, FL. 32922 Tom Mikkelsen (WQAD-TV8 ABC), 3003 Park 16th Street, Moline, IL 61265; Bill Paternak WA6ITF (Metromedia Corp. Hollywood), 28197 Robin Avenue, Saugus, CA 91350; Frank Wolczak WAØIWF (Cox Cablevision), 3120 U-Street, Omaha, NE 68107.

COMPUTERS Clay Abrams K6AEP (TRS80C), 1758 Comstock Lane, San Jose, CA 95129; Howard Nurse W6LLO (Apple), 665 Maybell Avenue, Palo Alto, CA 94306; Paul Rinaldo W4RI (Packet), 1524 Springvale Avenue, McLean, VA 22101; Dave Sargent K6KLO (Interfaces), P.O. Box 20903, San Jose, CA 95160; Ron Tonneson KØQVF (SWTP), P.O. Box 32, Fairfax, IA 52228; Robert Suding WØLMD (Digital), 1161 Reston Avenue, Herndon, VA 22070; Don Williams W4MQN (6800/6809), 5900 Cassandra Smith Road, Hixson, TN 37343.

SATELLITES John Beanland G3BVU, P.O. Box 1084, Concord, MA 01742; Dr. John Champa K8OCL (AMSAT), P.O. Box 287, Mount Vernon, OH 43050; Gayle Sells W7AMQ (Oscar), 7811 NE Prescott Street, Portland, OR 97218.

FSTV — NBTV — MSTV — SSTV — FAX — 432 SSB/EME — SATELLITES — MICROWAVE — COMPUTERS — SPREAD SPECTRUM — PACKET — DIGITAL TECHNIQUES

master charge

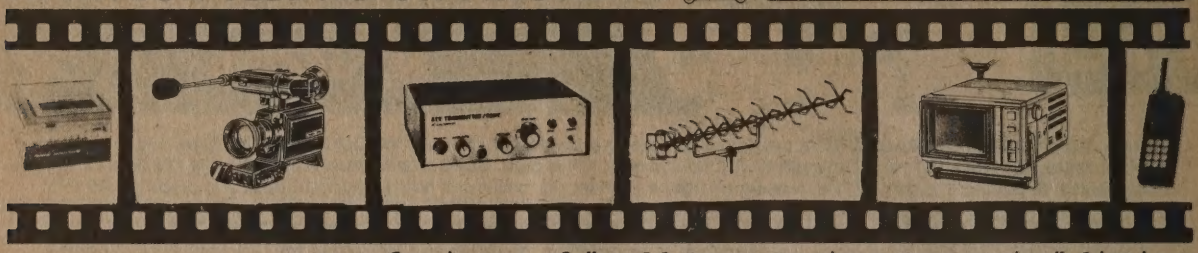
your BANKAMERICARD welcome

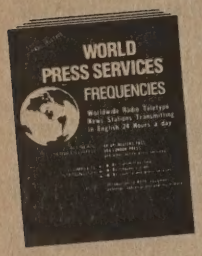
"OUR 16TH YEAR — SINCE 1967"

"For the specialized communication radio amateur"

AMATEUR TELEVISION MAGAZINE

members' ads
"FREE TO SUBSCRIBERS"





Just a few issues of "World Press Services Frequencies" listings of RTTY transmissions by Tom Harrington W8OMV left from our mid-west "hamfest" travel circuit. $7.95 in other Ham publications, $6.95 at A5 regularly but closeout special of $5.95 ppd! 1 issue left of RTTY Journals "Beginners RTTY Handbook, regularly $7.85 now only $5.00 (slightly soiled cover). Back issues of A5 now $1 each (on hand-March thru December 82) add 50¢ per issue postage, Rejected covers (insides okay) New A5 ATV Book "Everything You Always Wanted To Know About ATV" $5.00 add 1.50 ppd (envelope in cluded by A5) -QCD Publications, PO Box H, Lowden, Iowa 52255

****

Model 35 KSR Teletype (8-level model 28 series) with converter for Baudot/Ascii all for only $100! W9RI John Greve, 4211-7th Avenue, Rock Island, Illinois 61201 (5pm+)

****

Get that metal support arm on J-Beams out of the way of the RF pattern for vertical mounting polarizations with new fibreglass mounting kits! Includes all clamps and instructions. VMK-48/88 $19.95 -Spectrum International c/o John Beanland (see ad)

****

Video-Jerrold Hi-band dist. amp #BDA-713, auto-gain control AGC-213, dist. amp LSA 410b; TV antenna blocks (3"X4") w/3000 ohm terminals/inputs (unused and packaged $3.00 each (add $1.00 ppd or 5/$13 ppd). Wanted B/W or Color Camera (Panasonic or?) 1/2" reel-to-reel videotape recorder/player, any IBM selectric, small computer. Any trades considered or will buy outright. -Dan, PO Box 9064-A5, Newark, NJ. 07104.

****

I need a manual and schematic for a Sony AVC-3450 Camera (12vdc) model. Can you aid my search? Copy charges and postage repaid. K7LK, Box 3300 RT, Red Lodge, MT. 59068

****

For sale-Robot 400 SSTV Converter, unmodified, only 6 months old, mint shape! $550 Contact Leon Frank KCØPT, 303 West 15th, Hays, Kansas 67601. Thanks A5 Magazine!

****

For sale-Black and White Video Camera with extra lense, excellent condition. Write for more information to Wes Loeckle, 2235-21st. SW, Mason City, Iowa -50401 TNX A5

****

For sale-PC Electronics TVC-4L ATV Downconverter, like new and rarely used, $50.00 Kevin Perry N8DZP, 2117 West 81st., Cleveland, Ohio 44102 (216) 631-6550 after 6pm

****

For sale-Rockwell AIM-65 single-board computer with 4K RAM on-board, expandable to 32K, 40 column display, modem and mother board. First $400 takes! (203) 928-0138.

****

Wanted-Schematic and/or instruction manual for Concord TV Camera model MTC-10 or I will pay for photo-copies and postage. W9BS Jerry Lucas, 7830 Melbourne Road, Indianapolis, Indiana 46268. Thanks for making A5 even better! (Lucas Lectronique)

****

Square Wave Generator, Tektronix #105 with manual $35. Time Mark Generator, Tektronix #180-S1 with manual $35. Meg Sweep, Kay Electric with manual (copy) $25. Audio Signal Generator, Hewlett-Packard model #206A-R $35. Buyer pays shipping/I'll pack George Warren Ziegler, 9 Sprague Drive, Valley Stream, New York 11580 (K2BGM) TnxA5

****

Full Color SSTV!

Simulated TV picture

Announcing the K/W SC-422A 3-Memory SSTV Scan Converter System* ... The World's First FULL COLOR SSTV with Motion Animation and Colorflash!

The K/W SC-422A Scan Converter System now makes it possible for you to transmit and receive both FULL COLOR or BLACK and WHITE SSTV with selectable 128 or 256 pixel resolution!

FULL COLOR PICTURES CAN BE DISPLAYED:

- On an RGB Color Monitor
- On a Standard Color TV set with the K/W Color Encoder Model #CE 1101
- Or on a Standard Color TV set using a K/W Interface Board.

Color pictures can be put into the three memories of the K/W SC-422A Scan Converter with a standard black and white TV camera using Red, Green, and Blue filters!

A tunable signal sync control assures painting of off-frequency stations without retuning the VFO.

The dual-speed switching circuit between memories #1 and #2 provides motion animation.

In addition, the "fantastic" KB 422A Keyboard Graphic Generator and LP 422A Light Pens allow you to produce great color graphics.

Now you can add FULL COLOR SSTV to your system at reasonable cost.

For detailed technical and ordering information, contact: Mr. Walter Giesser WB2OWX, R & D Manager, Ext. 207.

*Built in Germany by Volker Wraase Elektronik to K/W Control Systems specifications.

CONTROL SYSTEMS, INC.

South Plank Road, Middletown, New York 10940
Phone (914) 355-6741 TELEX No 13-7428

ATV Research

VIDEO PRODUCTS FOR EXPERIMENTERS, AMATEURS and INDUSTRIAL USERS AROUND THE WORLD!!

LIGHTS or NO LIGHTS...

We've got a camera to meet your most demanding needs!!

IMAGE-2I/KOYO CCTV LINE

MODEL 5100-2 Vidicon Camera (B-W). 2/3" separate mesh. 10,000:1 ALC. 600 lines. White clip circuit. 120VAC. List $270. Your cost less lens $186. With 16mm F1.6 lens, $199.

MODEL 5100-6 Same as above but 24VAC version. Same prices as above.

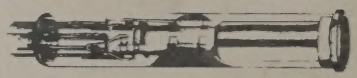
MODEL TVC-999-2 Vidicon Camera (B-W). 1" tube. 0.5 ft candle sens. 25,000:1 ALC. 600 lines. White clip. UL listed. 120VAC List $320 less lens. Your cost $256. With 25mm lens $285.

MODEL TVC-5210-2SU Ultricon (Silicon) Camera (B-W). Very high sensitivity (.05 ft candle). 200,000:1 ALC. 600 lines. Int. EIA 2:1 interlace/External sync provision. White clip. "Operates on the light of a match!" List $900. Special discount cost less lens $675.

Model TVM-90(Grey) 9" industrial CCTV monitor $194.
Model TVM-90AC (Almond) 9" computer monitor $199.
Model V-100 12" consumer monitor (CCTV, cptr) $135.
Model V-100G 12" consumer monitor green screen $155.

**Many other monitors, cameras, kits and parts available. **

VIDICON CAMERA TUBES



ATV RESEARCH offers a wide selection of vidicon tubes to meet the diversified needs of budget-conscious industrial, educational, experimental and consumer applications.

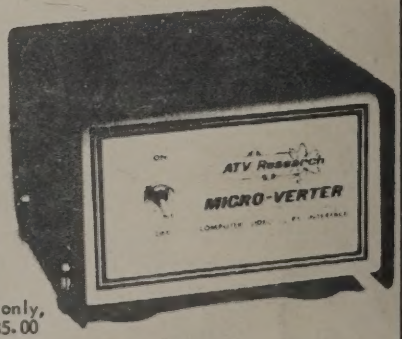
5,000 to 10,000 HOURS AVERAGE LIFE • OVER 600 LINES CENTER RESOLUTION
IDEAL FOR DIRECT REPLACEMENTS • FULLY GUARANTEED

2/3" VIDICONS			1" VIDICONS		
20PE11	Industrial grade (best)	$50.00	7735A(I)	Industrial grade (best)	$49.95
20PE13A	Industrial grade	52.00	7735A(C)	Commercial grade (medium sens.)	39.95
20PE14	Industrial grade	57.00	7735A(H)	Amateur grade	29.95
20PE19	Industrial grade	57.00	7735A(E)	Experimental grade (new or used)	19.95
20PE20	Industrial grade	54.00	7735A(U)	Used (pulled from commerical equip)	10.00
8823	Industrial grade	51.50	7262A	Industrial grade	55.00
8844	Industrial grade	54.50	8758A	Industrial grade	69.00
8929	Industrial grade	57.00			
S4075	Newvicon (for low light cameras)	450.00			

"BETTER VIEWING THROUGH BETTER TUBES"

MODULATORS!!!

We manufacture an extensive line of kit and assembled video and video/audio modulators covering the entire VHF, midband, superband and low UHF. Our modulators include the Pixe-Verter, Pixe-Plexer, Micro-Verter, Micro-Verter II and Apple-Verter. Full specs given in our FREE video catalog.



Micro-Verter Model 505, video only, assembled. CCTV/cmptr. $35.00

Micro-Verter II, Video-audio assbld. AC powered. Sat. TV/CCTV/Cmptr. $80.

Pixe-Verter kit video only $8.50
Pixe-Plexer kit video-audio $24.50
Apple-Verter (for Apple II) $29.75

NEW CATALOG NO. 822A

REQUEST A COPY TODAY!

DIAL : 402-987-3771 or WRITE

ATV Research 1301-5 BROADWAY DAKOTA CITY, NE. 68731

"Mfg. for the video industry for over 18 yrs."

"Better viewing in '82"

A5 AMATEUR TELEVISION MAGAZINE, P.O. BOX H, LOWDEN, IOWA 52255-0408
2ND CLASS, BULK RATE PERMIT #944960, ISSN #02794772 PAID AT LOWDEN, IOWA
WITH ADDITIONAL ENTRY AT DAVENPORT, IOWA. ATTENTION POSTMASTER:
ADDRESS CORRECTION REQUESTED. SEND TO:

Henry B. Ruh KB9FO
9391 West State Hiway 46
Elletsville, IN 47429
LIFE